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Information Services  
Programme—Europe

## Leading Vendor Competitor Analysis

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# LEADING VENDOR COMPETITOR ANALYSIS

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***Leading Vendor Competitor Analysis***

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## INFORMATION SERVICES PROGRAMME - EUROPE

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### COMPANY PROFILES

#### CONTENTS

Company Name	Date	Country
ACT Group plc.	12/92	United Kingdom
Alcatel TITN Answare	12/92	France
Andersen Consulting	06/92	United States United Kingdom
AT&T	06/92	United States
AT&T	11/92	United Kingdom
Axone	06/92	France
Borland International Inc.	12/92	United States France
BSO/Origin	11/92	The Netherlands
BT Customer Systems	12/92	United Kingdom
Cap Gemini Sogeti	06/92	France
CGI Informatique	12/92	France
CISI	11/92	France
CMG (Computer Management Group) Ltd.	12/92	United Kingdom
CompuNet Computer AG	12/92	Germany
Computer Sciences Corporation	06/92	United States
Data Sciences Ltd.	11/92	United Kingdom
DATEV eG	12/92	Germany
Digital Equipment Corporation	06/92	United States Switzerland
Dun & Bradstreet Software	12/92	United States France

EDS	12/92	Switzerland United Kingdom
Enator AB	12/92	Sweden
Eritel	12/92	Spain
Finsiel	12/92	Italy
GE Information Services	12/92	Italy
Groupe Axime	11/92	France
Groupe Concept	12/92	France
GSI (Generale de Service Informatique)	11/92	France
Hewlett-Packard	12/92	United States Switzerland
ICL PLC	12/92	United Kingdom
Integraph Europe Inc.	12/92	The Netherlands United States
International Business Machines (IBM)	12/92	United States
Logica Plc	06/92	United Kingdom
Lotus Development Corporation	12/92	United States United Kingdom
McDonnell Douglas Information Systems International	11/92	United Kingdom
Microsoft Corporation	12/92	United States France
Novell, Inc.	12/92	United States
Ing. C. Olivetti and Co. S.p.A. (Olivetti)	12/92	Italy
Oracle Corporation	12/92	United States United Kingdom
RAET N.V.	12/92	Netherlands
Reuters Holdings Plc	11/92	United Kingdom France Germany Switzerland

Sema Group	12/92	France United Kingdom
Siemens Nixdorf Informationssysteme AG	06/92	Germany
Sligos	12/92	France
Software AG	12/92	Germany
Telekurs AG	12/92	Switzerland
Télésystèmes	11/92	France
Tietotehdas Oy	12/92	Finland
Unisys	12/92	United States
Volmac Software Groep N.V.	11/92	The Netherlands

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## COMPANY PROFILE

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### **ACT GROUP PLC**

ACT House  
111 Hagley Road  
Edgbaston  
Birmingham B16 8LB  
United Kingdom  
Tel.: 44 21 456 1234  
Fax: 44 21 445 8427

Chairman: Roger Foster  
Group MD: Mike Hart  
Status: Public  
Number of Employees: 1,856 FYE 31/3/92  
Revenue (FYE 31-03-92): £119.4 Million

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### **The Company**

In May 1990, this company changed its name from Apricot Computers plc to ACT Group plc. Apricot Computers had been founded (originally with the ACT name to which it was reverting) in 1965. The ACT Group is principally engaged in the development and supply of computer software, services and solutions. Its products and services are mainly provided to the government, commerce, finance, and health care markets.

In 1990 the group's four-year strategy was completed. This strategy was to build its software and services activity to the point at which it was possible to dispose of its computer hardware business and still leave a major U.K. group trading in the higher growth and more profitable areas of software and services.

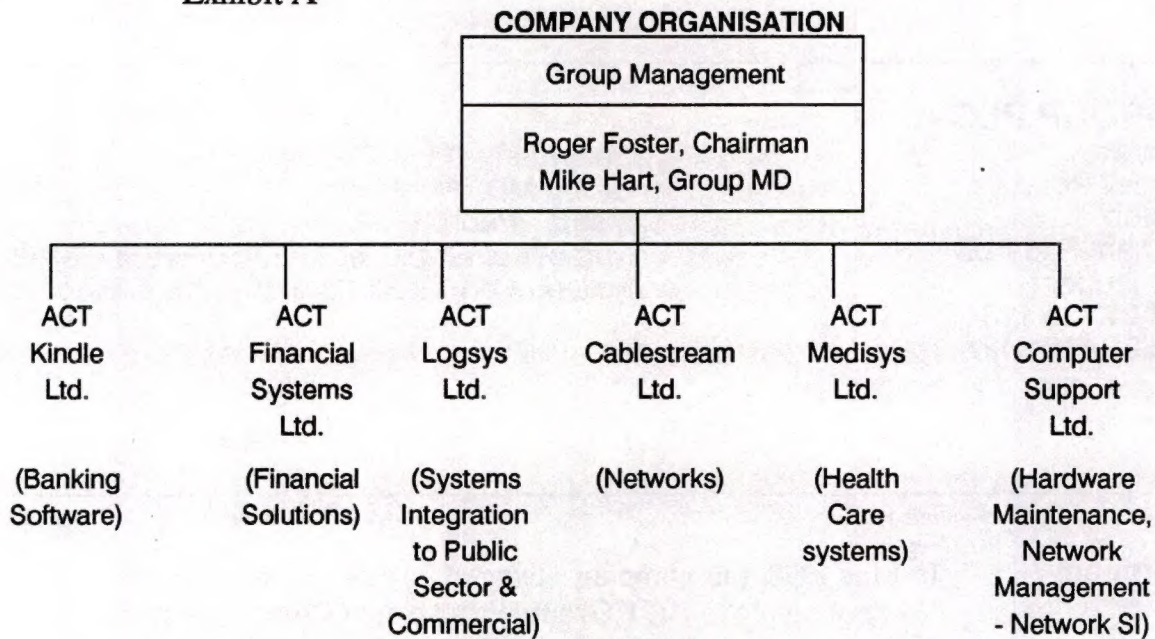
Following the sale of the computer hardware business, ACT has experienced a period of greater stability and more consistent profit and revenue growths.

The company made a number of acquisitions in 1991 and 1992, through which it has significantly expanded its target markets. Most significant was the acquisition of Quotient and the Kindle Group. From 1st July 1992, Kindle Group will operate as a separate business unit but will work closely with ACT Financial Systems.

In early 1992 ACT launched a new division, Network SI, to implement and manage complex networks. The company forecasts contracts worth £10 million for the first year of operation. The new division has 45 employees.

The group operates six highly focused companies, which are shown in Exhibit A. Other executives are shown in Exhibit B.

## Exhibit A



## Exhibit B

**OTHER EXECUTIVES**

NAME	POSITION
Brian Whitty	Group Finance Director
Peter Oldershaw	Commercial Director
Chris Winn	Director

The company's major shareholders and principal subsidiaries are listed in Exhibits C and D.

## Exhibit C

**SHAREHOLDERS**

SHAREHOLDER	PERCENT OWNED
Singer & Friedlander Group Plc	14.37
Scottish Amicable Life Assurance Society	3.86
Schroder Investment Management Limited	7.79
Fidelity Investments	6.08
M.A. Kilduff Esq	4.52
Others	63.38

## Exhibit D

## PRINCIPAL SUBSIDIARIES

SUBSIDIARY	COUNTRY	% OWNED
<b>Software Products and Associated Services:</b>		
ACT Financial Systems Ltd.	U.K.	100
Quotient plc	U.K.	100
ACT Financial Systems	Australia	100
Quotient France SA*	France	60
ACT Financial Systems Software GmbH*	Germany	100
ACT Financial Systems Ltd.	Japan	100
ACT Financial Systems Inc.*	U.S.A	100
Kindle Group Ltd.	Ireland	100
Kindle Limited*	U.K.	100
Kindle Software Pte Ltd.*	U.K.	100
ACT Medisys Ltd.	U.K.	100
ACT Stemmler Ltd.	U.K.	100
<b>Systems Integration and Support Services:</b>		
ACT Cablestream Ltd.	U.K.	100
ACT Computer Support Ltd.	U.K.	100
ACT Network SI Ltd.	U.K.	100
DDT Maintenance (Ireland) Ltd.	Eire	100
ACT Logsys Ltd.	U.K.	100
ACT Sigmex Ltd.	U.K.	100
ACT Sigmex B.V.*	Netherlands	100

\* Held through subsidiary undertakings.

In March 1992, the ACT group employed 1,856 staff. The average number of employees during the previous year was 1,609 (see Exhibit E).

## Exhibit E

## 1991 EMPLOYEE ANALYSIS BASED ON AVERAGE NUMBER OF EMPLOYEES

DEPARTMENT	NUMBER OF EMPLOYEES
Software Products and Associated Services	671
Systems Integration and Support Services	915
Central Services	23
<b>TOTAL</b>	<b>1,609</b>

**Acquisition  
History**

- In April 1989, 100% of the DDT Group plc was acquired for a consideration of approximately £7 million. DDT was a group engaged in third-party maintenance.
- In June 1989, 100% of Logical Systems International Limited (LSI) was acquired for an initial consideration of £750,000 with up to £300,000 additional consideration based on subsequent trading performance. LSI was a software company operating in public sector markets.
- In November 1989, the group acquired ITL Information Technology plc for a consideration of approximately £12.6 million. ITL was a computer manufacturing group engaged in systems integration, systems and software for the health care market, maintenance and networking.
- In May 1990, the sale of the computer hardware division to Mitsubishi Electric Corporation for a cash consideration of £39 million was completed. The disposal of the division was decided on because in recent years it had been returning low profits to the group. The company's priority now lay in building its software and services activity. Accordingly, a number of acquisitions followed.
- In June 1991, ACT acquired Quotient, the U.K.-based international financial software business, for £27 million. Quotient had sales in calendar 1990 of £22.4 million and employed 370. Quotient has been integrated with ACT's financial services operations and has strengthened its activities with an extensive set of applications products and an international sales network.
- In December 1991, ACT acquired the Kindle Group for £342 million. From 1st July 1992, Kindle will be called ACT Kindle Ltd. It is intended that ACT Kindle will continue to operate as an autonomous subsidiary, though closely collaborating with ACT Financial Systems.
- In June 1992, ACT acquired a 25.4% interest in NMW Computers, which specialises in software and services for the U.K. securities business.
- In May 1992, ACT acquired Medical Computer Services Ltd., a supplier of software packages to the U.K. private health sector.
- In August 1991, ACT acquired Stemm Computing for £2 million. Stemm supplies operational software for hospital departments.

## Major Recent Projects

Examples of recent projects carried out by ACT Group are as follows:

- ACT Financial Systems secured a five-year software and services contract from the Czech and Slovak Republics' Investicni Banka for its QUASAR investment management software.
- ACT Financial Systems supplied Credit Agricole with QUOTIENT limits, its credit risk and exposure management solution.
- ACT Kindle supplied its BANKMASTER, core international banking system to the State Bank of India.
- ACT Medisys supplied its Patient Management System to Rugby NHS Trust and its Computer Integrated Laboratory Management System (CILMS) to Addenbrookes Hospital in Cambridge.
- ACT Logsys was recently awarded a contract from the Metropolitan Police Service (MPS) to implement its property management and office automation systems at locations throughout the City of London.
- ACT Cablestream installed an Ethernet PDS-based communication system with over 3,000 outlets for the British Broadcasting Association (BBC).
- ACT Computer Support provides support and maintenance services to London Underground Limited.

## Key Products and Services

The ACT group is organised in six business divisions:

- ACT Logsys Ltd.
- ACT Financial Systems Ltd.
- ACT Kindle Ltd.
- ACT Medisys Ltd.
- ACT Cablestream Ltd.
- ACT Computer Support Ltd.

**ACT Logsys Ltd.**

The company is a leading supplier of open systems-based solutions to the public sector, with major customers such as the Civil Aviation Authority, Ministry of Defence, NATO and the RAF.

ACT Logsys provides a range of services including consultancy, systems design and implementation, project management and quality assurance.

The Open Systems Centre provides integrated solutions for local government, defence administration and major contractors, while the Advanced Systems Centre offers a specialist resource for the operations side of the defence sector.

The Government and Commercial Systems Centre focuses on open systems and integration services for the government and selected private sector accounts.

ACT Logsys' specialist graphics division ACT Signex majors on integration and graphical solutions.

To increase its access to key technologies ACT has entered into strategic agreements with a number of companies, such as RETIX for the supply of OSI communication and networking products.

**ACT Financial Systems Ltd.**

The company is among the leading suppliers of software, services and consultancy to the financial services sector in the U.K. and internationally. It develops, markets and supports sophisticated software and services and has made hardware independence the focus of its product strategy. Its software addresses investment management, banking, insurance, dealing and retail finance. The client base includes the major clearing banks, leading pension funds, stockbrokers, building societies, unit trust management companies, insurance principals and insurance intermediaries.

ACT Financial Systems is involved in a series of initiatives, including the implementation of links to the International Stock Exchange's automated settlement system, TAURUS, and the BROKERNET Standards for the insurance industry.

The acquisition of Quotient plc has brought a wide range of high value-added products that complement those of ACT Financial Systems, together with a large "blue chip" customer base and offices in the world's major financial centres.

**ACT Kindle Ltd.**

Formed in 1979 and acquired by ACT Group in December 1991, ACT Kindle specialises in designing, marketing and supporting wholesale and retail banking software packages. The company has 150 customers spanning 55 countries.

The company sells direct from Dublin, London, Singapore and Bahrain and through third parties including distributors and hardware manufacturers with which ACT Kindle has porting and co-operative marketing agreements.

**ACT Medisys Ltd.**

The company supplies products and services that cover all aspects of a hospital's administrative and clinician operations. Independent of computer manufacturers, ACT Medisys is committed to open software solutions.

It provides IT consultancy, systems integration, training and support services for the health care sector. The client base includes 59 National Health Security districts.

ACT Medisys has developed VISION, which is a 4GL database system that permits easy development of information processing in acute mixed speciality hospitals.

In August 1991, ACT Medisys acquired Stemm Computing. This acquisition substantially expanded ACT Medisys' product offerings in the Hospital Information Support Systems (HISS) market.

The May 1992 acquisition of Medical Computer Services (MCS) gives a leading U.K. position to ACT Medisys in the supply of software to private hospitals and a further platform for international expansion.

**ACT Cablestream Ltd.**

ACT Cablestream specialises in the design and implementation of standards-based corporate networks, particularly in the automotive and petrochemical industries, and the manufacturing, finance and public sectors. The client base includes Shell, BP, Ford, Peugeot, Rolls Royce, British Telecom and the Bank of England.

It also offers a full range of professional services, including consultancy, network design and installation, project management, support and maintenance.

**ACT Computer Support Ltd.**

ACT Computer Support underpins many of the ACT Group subsidiaries' largest customer installations. It claims to be the U.K.'s second-largest third-party maintenance company.

From a base of multivendor microcomputer services, the company has added a full minicomputer maintenance facility and developed a wide range of complementary network, UNIX and communications services.

The company's ongoing trading agreement with Mitsubishi, following the latter's acquisition of the Apricot microcomputer business, will continue to provide substantial maintenance and warranty revenues as the Apricot PC base expands. ACT Computer Support has the sole rights to Apricot PC spares distribution in the U.K.

Recurring revenues from support contracts account for 70% of ACT Computer Support's business.

ACT Computer Support has recently expanded its TPM business with a number of small, cost-effective acquisitions, which increase the company's customer base to a total in excess of 10,000.

In January 1992, ACT launched Network SI, a new division supplying network management services for major corporate and local authority IT users.

**Financial  
Information****Exhibit F****SIX-YEAR FINANCIAL SUMMARY (FYE 31-3) (£ MILLIONS)**

YEAR	1987	1988	1989	1990	1991	1992
Revenue	71.2	85.1	105.8	140.7	*98.8	119.4
Annual Growth (%)	(21)	20	24	33	(30)	21
Profit before Taxes	4.0	8.2	6.0	8.0	12.7	17.0
Annual Growth (%)		105	(27)	33	59	34
Profit after Taxes	2.8	3.6	3.0	3.7	-	-
Annual Growth (%)		29	(17)	23	-	-
Earnings per Share	5.03p	9.53p	6.22p	7.07p	9.50	10.8
Annual Growth (%)		89	(35)	14	34	14

Source: ACT Group

\* The decrease in turnover is attributed to the sale of Apricot Computer hardware Division, which was sold in 1990 for £39 million.

**Market Analysis****Exhibit G****1992 MARKET ANALYSIS BY ACTIVITY**

ACTIVITY	REVENUES	PERCENT
Software Products and Associated Services	54.9	46
Systems Integration and Support Services	64.5	54
<b>TOTAL</b>	<b>119.4</b>	<b>100</b>

Source: ACT Group

## Exhibit H

**1992 MARKET ANALYSIS BY GEOGRAPHIC AREA (£ MILLIONS)**

COUNTRY	REVENUE	PERCENT
U.K.	101.5	85
France	1.8	1.5
Ireland	3.0	2.5
Netherlands	2.2	1.8
Scandinavia	0.8	0.8
Germany	0.9	0.8
Rest of Europe	1.8	1.5
Australasia and the Far East	3.1	2.6
North America	2.3	1.9
Africa and the Middle East	1.9	1.6
Other	<0.1	-
<b>TOTAL</b>	<b>119.4</b>	<b>100.0</b>

Source: ACT Group

## Exhibit I

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (£ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Software Products	16	13
Turnkey Systems	28	23
Professional Services	50	41
Systems Integration	28	23
<b>TOTAL SOFTWARE &amp; SERVICES</b>	<b>122</b>	<b>100</b>

\* INPUT estimate of ACT software and service revenues

## Exhibit J

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (£ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	7	6
Telecommunications	4	3
Wholesale Distribution	7	6
Banking and Finance	49	40
Insurance	7	6
Health Care	15	12
Local Government	7	6
National Government	22	18
Other	4	3
<b>TOTAL SOFTWARE &amp; SERVICES</b>	<b>122</b>	<b>100</b>

\* INPUT estimate

## Company Strategies

### (a) Company Direction

ACT Group's ambition is to become an international company. By the end of its current financial year (31-3-1993), the group expects that over 20% of sales will be made internationally.

ACT's international strategy is based primarily upon sales of its software packages and related services, principally in the financial and health care market.

The group strategy continues to be based on clearly focused business units operating with a substantial degree of autonomy, all of which continued to operate profitably throughout the year. Total 1992 profits for the group before tax reached £17.02 million, an increase of 34% over 1991.

ACT Group's subsidiary companies are focused on a particular market, or area of expertise. Its main markets will continue to be the finance market, health care and public sectors, whilst it will continue to provide systems integration and support services to the wider IT market.

**(b) Strengths and Weaknesses**

ACT Group's main strength lies in its continued focus on its target markets and its ability to successfully expand its range of products and services in these markets.

In 1991 and 1992 the company made a number of strategic acquisitions, most notably in the finance sector with Quotient and Kindle Group. Both companies have software products that enhance and expand the existing ACT range.

In addition, the acquired companies have ownership of their software products; thus, the group now owns the intellectual property rights to an increasing list of software products. Certainly, control of its own software is seen as a core asset to ACT.

In fact, ACT is expecting two-thirds of group profit in the current year to be generated directly or indirectly from the intellectual property rights to software owned by the group.

ACT has a strong presence in the financial sector, particularly in the U.K. Over the past few years the company has expanded from a base of three major U.K.-based product lines to ten products addressing seven international markets. This process has been accelerated by the international network of Quotient plc.

ACT has also improved its presence in the health sector with the addition of Medical Computer Services' private sector hospital software.

ACT Group's main weakness is its lack of international revenues. Despite its international strategy, the company has yet to prove itself as a major international player in its target markets. In 1992, 85% of revenues were derived from the U.K.

**(c) Conclusions**

ACT Group has performed well in 1992 at a time when other software and service vendors are showing declining profits or losses.

The company values ownership of software products highly and investment in development is currently at a level of over £12 million per annum.

ACT's policy of acquiring companies whose products, services and personnel can be integrated with and are beneficial to its core subsidiaries has proved to be successful.

It cannot be doubted that the company's recent acquisitions have been anything but strategic in broadening the groups product range and expanding its markets geographically.

The company is clearly intent on internationalisation, but the challenge will be in actually obtaining a substantial amount of revenue from its offices outside of the U.K.



## COMPANY PROFILE

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### **ALCATEL TITN ANSWARE**

1 rue Galvani  
B.P. 110  
91 301 Massy Cedex  
France  
Tel: (33-1) 69-81-11-00  
Fax: (33-1) 69-20-15-04

President: Claude Goguel  
Directeur General: Paul Caizergues  
Directeurs Generaux Adjoints: Francois Maison,  
Jean Renault  
Number of Employees: 1,570  
Revenue (FYE 31-12-91) Ffr 754 million.

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### **The Company**

Alcatel TITN Answare is the result of a merger between Alcatel TITN and Alcatel Answare.

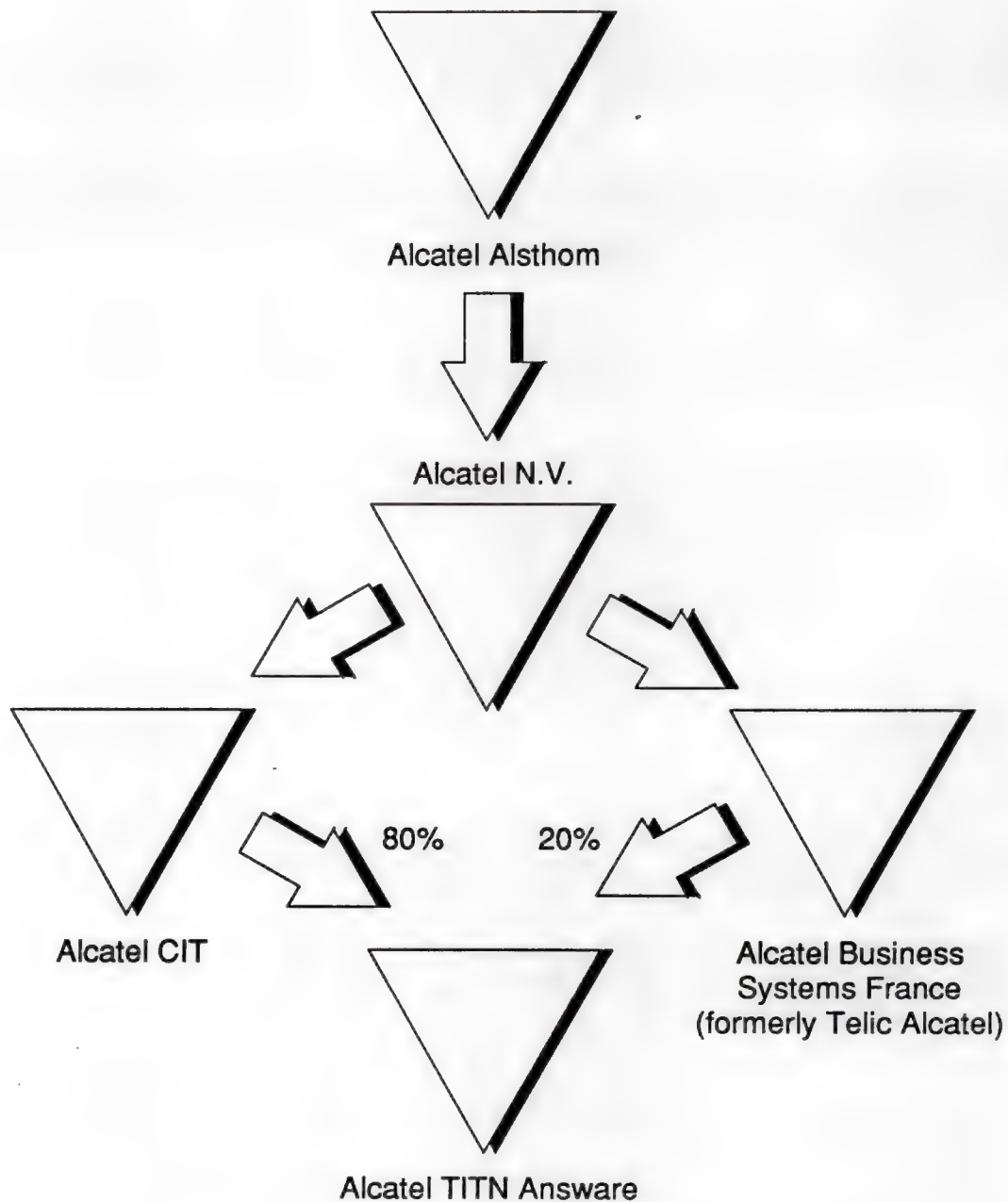
Alcatel TITN was founded in 1968, as a wholly owned subsidiary of a financial holding company controlled by Telic Alcatel.

In 1989 they became part of a new holding company owned by Alcatel GT and Telic Alcatel. In 1990, the operations of both companies merged to form Alcatel TITN Answare. The current ownership of the company is shown in Exhibit A.

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## Exhibit A

## ALCATEL TITN ANSWARE



Alcatel TITN Answare offers a wide range of services including consultancy, systems development, turnkey systems and systems integration and has specialised skills in networking communications.

Alcatel TITN Answare is active in the following industry sectors.

- Telecommunications
- Aerospace and Defence
- Service sector:
  - Public sector
  - Banking and Finance
  - Professional service companies

The company is headquartered in Paris and has a network of 15 local offices throughout France.

Alcatel TITN Answare's main subsidiaries and affiliate companies are shown in Exhibit B.

Exhibit B

MAIN SUBSIDIARIES AND AFFILIATES

COMPANY	COUNTRY	PERCENT OWNED
Alcatel TITN Inc	U.S.	100
COGITIEL	FRANCE	49
Alcatel AVI S.A.	FRANCE	11

- Cogitel is a joint subsidiary of Cegelec and Alcatel TITN Answare. Cegelec holds a controlling 51% but TITN Answare has been assigned responsibility for management of the company.
- Alcatel AVI was created at the end of 1991.

Alcatel TITN Answare employed 1,570 staff in December 1991, against 1,495 in 1990. Exhibit C shows the structure of the workforce at the end of 1991.

## Exhibit C

1991 EMPLOYEE BREAKDOWN

EMPLOYEES	NUMBER	PERCENT
Engineers & Management	1,113	70.9
Non-Management	449	28.6
Line	8	0.5
<b>TOTAL</b>	<b>1,570</b>	<b>100</b>

Source: Alcatel TITN Answare.

### Major Recent Projects

Examples of network-related projects carried out by TITN Answare in 1991 are:

- Bibliothèque Nationale--Electronic document management including an electronic book consulting system.
- Sollac (Steelmaker)--A computerised industrial documentation system.
- France Telecom--Voice services for its new Memophone messaging service and for a second generation teleconferencing service.
- Alcatel CIT--Supplied subscriber identity management and security system for the Global System for mobile communications (GSM) digital cellular phone system.

### Key Products and Services

Alcatel TITN Answare is active in four principal areas:

- Software products
- Network services
- Professional services
- Turnkey systems

#### Software Products

Alcatel TITN Answare designs and develops application software products. The company's portfolio includes application solutions for the medical sector, emergency services and professional services sector. In the field of communications, it provides a full range of software covering all functions defined in the OSI model. Product offerings include:

- SARA: Call processing aid for emergency medical services. Sara provides decision support (geographic location, determination of

emergency resource requirements), follow-up of actions and patient files and data analysis.

- **SIGALE:** Fire department call management and decision aid. Real-time management of operations and multisite resources. Management of statistics, records and costing.
- **ATABAIL:** Software for management of real estate lease-purchase and long-term rental contracts.
- **CENTAURE:** A range of management and communications software packages for professionals (lawyers, doctors).
- **ISARD:** Biometric identification security system for control of access to site computer systems.
- **PROFITS:** Tracking of goods, shipping and administrative documents for EC merchandise in transit at the port of Marseille-Fos.
- **TWICE:** Telecommunications software covering the functions defined in the OSI model.
- **SPEEDOC:** Computerised documentation system for management of logistics documents aboard nuclear submarines.
- **MNEMOS:** Data and document archiving software for computer-aided design, manufacturing, operating and product support systems.

### **Network Services**

Through its parent Alcatel, TITN Answare has access to a whole range of networks, from local area networks to ISDN, including packet-switched and leased lines. The company has particular expertise in integrating communication media such as voice, image and print into networks.

### **Professional Services**

Alcatel TITN Answare's consultancy, audit, training and technical support activities are extensive. The company also undertakes custom software development.

### **Turnkey Systems**

TITN Answare provides complex turnkey systems to the telecommunications, aerospace and defence sectors.

**Industry Knowledge**

Alcatel TITN Answare operates in most industry sectors with emphasis on the Telecommunications, aerospace and defence sectors.

Telecommunication activities account for over 30% of TITN Answare revenues where the company is an established vendor with over 20 years' experience in designing and developing products.

TITN Answare has a division dedicated to the aerospace and defence markets which account for over 20% of revenues. The company has carried out projects for a number of French defence agencies (including DRET, DCN, DME and DAT).

**Financial Information****Exhibit D**

**THREE-YEAR FINANCIAL SUMMARY FYE 31-12 (FF MILLIONS)  
ALCATEL TITN ANSWARE**

YEAR	1989	1990	1991
Revenues	630	688	753.6
Annual Growth rate (%)	-	9	9
Profit after Tax	-	18.6	17.6
Annual Growth rate (%)	-	-	-5.3

Subsidiaries:

**Exhibit E**

**TWO-YEAR FINANCIAL SUMMARY (\$ MILLIONS)  
ALCATEL TITN INC**

	1990	1991
Revenue	4.1	4.2
Annual Growth rate (%)	9.8	4.1
Profit after Tax	.3	.2
Annual Growth rate (%)	-	-23

## Exhibit F

TWO-YEAR FINANCIAL SUMMARY (FF MILLIONS)  
COGITEL

COGITIEL	1990	1991
Revenue	24.6	32.5
Annual Growth rate (%)	70	32
Profit after tax	.8	1
Annual Growth rate (%)	-	24

## Market Analysis

## Exhibit G

## 1991 MARKET ANALYSIS BY REPORTED ACTIVITY (FF MILLIONS)

ACTIVITY	REVENUE	PERCENT
Consulting and Intellectual Services	418	56
Systems	256	34
Customer Services	79	10
<b>TOTAL</b>	<b>753</b>	<b>100</b>

Source: Alcatel TITN Answare

## Exhibit H

1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
(FF MILLIONS)

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	200	27
Process Manufacturing	100	14
Telecommunications	240	33
Banking and Finance	50	7
Insurance	7	1
Government	30	4
Business Services	75	10
Other	28	4
<b>TOTAL</b>	<b>730</b>	<b>100</b>

\*INPUT estimate

## Exhibit I

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (FF MILLIONS)**

DELIVERY MODE	REVENUE	PERCENT
Network Services	20	3
Software Products	20	3
Professional Services	400	54
Systems Integration	100	14
Turnkey Systems	190	26
<b>TOTAL</b>	<b>730</b>	<b>100</b>

### Company Strategies

#### (a) Company Direction

TITN Answare has a solid reputation as a provider of software engineering and systems integration.

TITN Answare aims to continue providing quality services. The company sees technical quality coupled with a service-oriented philosophy and motivated staff as paramount to providing customer satisfaction.

The company will focus on enhancing its technical ability and maintaining its skills base by ensuring a low turnover of staff.

TITN Answare devotes considerable resources to research and development, and has been involved in many leading-edge European research projects. The company sees this type of investment as ensuring its long-term technological capability.

#### (i) Geographic Coverage

Alcatel TITN Answare mainly operates in the French market but also has a presence in the U.S. market through its subsidiary Alcatel TITN Inc. The U.S. company had 1991 sales of \$4.2 million and employs 31 staff.

#### (ii) Partnerships

Alcatel TITN Answare has developed a number of alliances with other vendors and organisations to complement its capabilities. Exhibit J lists the company's current partnerships and the purposes they serve.

## Exhibit J

Partnership with	Purpose
ALCATEL CIT	Intelligent networks and messaging
ALCATEL RADIOTELEPHONE	Alert management systems for fire departments and emergency services
SEXTANT AVIONIQUE	Onboard test software for the Airbus A340 airliner
AEROSPATIALE TOULOUSE	Development of onboard avionics software
CEGELEC	Software for the power industry
BAIL ECUREUIL	Development of "Atabail" software package for management of lease purchase and long-term rental contracts, distributed with support from IBM (AS 400 distributor)
C.R.C.A. BRIE ET SOMME	Third-party applications maintenance
FRENCH INTERNAL REVENUE OFFICE	Software for revision of property taxes
ALCATEL SYSTEMS DE DEFENSE	Military telecommunications software

**(b) Strengths and Weaknesses**

TITN Answare's main strengths can be summarised as follows:

- Established vendor
- Financial backing of Alcatel and access to its technologies
- Strong industry focus
- Networking expertise
- Strong partnerships

TITN Answare is an established vendor in France. It is comprised of two companies who each possess over 20 years' expertise in providing software and services. As well as being an established presence in the market place TITN Answare has a wide geographic coverage of its domestic market through its network of 15 local offices.

The company possesses another strength in its membership in the Alcatel Group of companies. TITN Answare has the financial backing of a worldwide telecommunications organisation, with access to its new technological developments.

- TITN Answare has a strong vertical focus and has developed a number of industry-specific applications for its target markets.
- TITN Answare has strong networking skills. The company acts as design consultants and network builders for manufacturing, defence and the service industries. Alcatel TITN developed Transvox, the first voice-activated auto redial digital server to be made available to the public. TITN also developed the Réseau Lion, a network integrating voice, images and data on optical fibre. The Lion network was developed as part of the European Esprit project.

TITN Answare has broadened its product and service range, particularly its software offerings, by forming partnerships with other vendors.

The main challenge facing Alcatel TITN Answare will be its ability to expand outside the French market. The company does have a subsidiary in the U.S. but unlike other leading French vendors does not have any presence or derive revenues from the broader European market.

It is expected, however, that TITN Answare will move into the European market particularly with the Alcatel group active in the larger IT country markets.

### **(c) Conclusions**

TITN Answare is a product of two companies who were both established and successful vendors. The resultant operation is therefore a company with a broad spectrum of products and service offerings and a wider client base.

- TITN Answare is also better positioned to compete successfully against the other leading software and service vendors.

The companies as separate entities were in some areas competing with each other, particularly in the professional services arena, but with their combined skills and products they can offer services which complement each other.

Whereas Alcatel TITN specialised in software for the manufacturing process and professional services industry, Answare focused on communications products. The opportunity now exists for cross-selling of these products to its combined client base. At the same time the client has a broader choice and more comprehensive service.

Alcatel TITN Answare also has the added advantage of being able to access the whole range of Alcatel's networks and to be part of a group which is renowned for its communications developments.



## COMPANY PROFILE

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### ANDERSEN CONSULTING

Arthur Andersen & Co., S.C.  
69 West Washington Street  
Chicago, IL 60602  
(312) 580-0069

Managing Partner, George T. Shaheen  
Total Consultants: 21,668  
Total Personnel: 25,100  
Total Net Revenue, (FYE 31-8-91)  
\$2.26 billion

### ANDERSEN CONSULTING (EUROPE)

2 Arundel Street  
London WC2R 3LT  
England  
Tel: +44 71 438 5000  
Fax: +44 71 831 1133

Managing Partner: Vernon Ellis  
Market Development: Bill Barnard  
Status: Partnership operating worldwide  
Number of Employees: 7,000 professional staff in Europe,  
21,000 staff worldwide.  
European Fees: \$652.9 million (FYE 31-8-91) from  
46 offices in 18 countries.

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### The Company

Andersen Consulting was formed, as a distinct worldwide business unit within the Arthur Andersen worldwide organisation, in 1989. The original firm was founded in the U.S.A in 1913 and entered the information services business in 1952.

The coordinating entity of the Arthur Andersen Worldwide Organisation is Arthur Andersen & Co. S.C. based in Geneva, Switzerland. It includes all member firms and their related entities. This worldwide organisation serves clients through two business units: Arthur Andersen for audit and business advisory, tax and corporate speciality services; and Andersen Consulting for strategic services, integration services (systems integration and systems management), information technology consulting and change management services.

Andersen Consulting's European operations also co-ordinate markets in the Middle East, India and Africa.

Each member firm is privately owned and controlled by the partners in the country in which it operates. Member firms provide uniform professional training, they share practice methodologies and technology, and coordinate their operations to eliminate barriers to serving clients.

The European business has expanded rapidly in recent years almost entirely through organic growth.

Andersen Consulting offers management and technology consulting to clients in nearly every business and governmental sector. The organisation helps clients use information technology competitively in all phases of their management activities--strategic, operations, and financial.

Andersen Consulting believes it can ultimately help its clients "reengineer" or rethink the way they do business--a process, the firm claims, that can lead to business integration, or the integration of technology, strategy, operations, and people.

Andersen Consulting offers its services through the following service lines:

- Systems Management, including operations and network services, facilities management, applications management, and backup/recovery services
- Systems Integration, including systems design, building, integration, and implementation
- Strategic Services, including competitive and market strategy, organisation and change strategy, business operations strategy, and information and technology strategy
- Change Management Services<sup>sm</sup>, including organisation change, technology assimilation, knowledge transfer, and quality management.

Andersen Consulting also offers manufacturing and logistics applications software products and FOUNDATION, a computer-aided software engineering (CASE) toolset.

Andersen Consulting currently serves clients through 151 offices in 46 countries. The organisation includes more than 21,000 consultants worldwide.

Andersen Consulting's fiscal 1991 revenue reached \$2.26 billion, a 20% increase over fiscal 1990 revenue of \$1.88 billion.

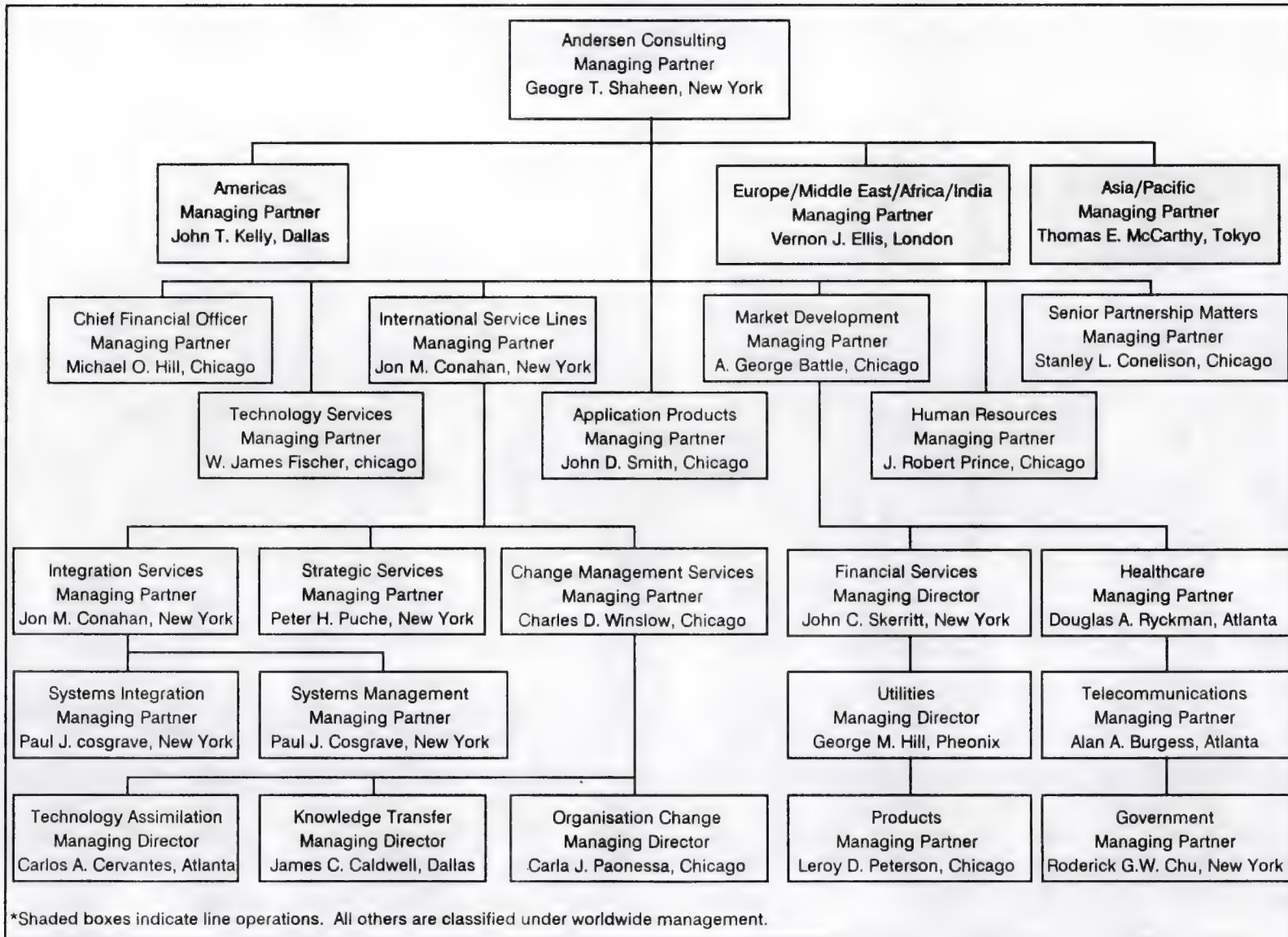
**Organisation  
Structure**

In the 1986-1987 time period, a number of Arthur Andersen & Co. senior consulting partners approached Duane Kulberg, AA's former CEO, to lobby for a change in the structure of the firm that would facilitate the growth of the consulting side of the business. They argued that the traditional "partnership" structure with practice office accountability was inappropriate to a business with an increasing national and international focus. The result was the organisational change that created Andersen Consulting.

In 1987, the consulting partners in local offices began to report through a parallel line of management of regional and national consulting partners. At a national level, the consulting practice still reported to the Arthur Andersen practice head in that country - more often than not, with a background of audit. At the same time, a strengthened dotted-line relationship was created between the country consulting heads (or regional consulting heads in the U.S.) and the Consulting Managing Partner in Chicago. This move strengthened the consulting practice significantly.

Andersen Consulting now manages and delivers its services through the matrixed structure depicted in Exhibit A.

## Andersen Consulting Organisational Structure\*



\*Shaded boxes indicate line operations. All others are classified under worldwide management.

Exhibit A

ANDERSEN CONSULTING

INPUT

The organisation is headed by George Shaheen. Reporting to him are managing partners with operational responsibility for three major geographic areas: the Americas, EMEA (Europe, Middle East, and Africa) and the Asia and Pacific area. These partners have responsibility for delivering all of Andersen Consulting's services to their clients.

Also reporting to Mr. Shaheen is a managing partner of international service lines who have responsibility for establishing strategies and plans for each of Andersen Consulting's major offerings - integration services, change management, and strategic services.

Strategic Services assists clients in forming and managing their, strategic planning processes. Included are services that analyse the client's marketplace and competitive position, identify strategic alternatives, establish a formal direction and monitor the execution of strategies.

The Change Management Services practice works with organisations to position people, processes and technology for maximum continuous benefit. These services focus on organisational structure, knowledge transfer and the integrated use of technology. Integration services includes two major components - systems integration and systems management. System integration includes the full range of development and integration activities; system management includes facilities management and remote processing. By including these two activities in a single organisation, Andersen Consulting provides complete life cycle development and operations services.

Additional areas that report to Mr. Shaheen include Technology Services, responsible for technical excellence (including products such as FOUNDATION), Application Software, responsible for building and maintaining Andersen's application software packages, and Market Development.

Based on INPUT's interviews with Andersen Consulting, responsibilities are distributed in accordance with Exhibit B, which compares how major responsibilities are managed within the commercial and federal organisations, respectively. A "C" indicates that the responsibility for the activity in question is primarily centralised, a "D" means decentralised, and a "B" indicates that the responsibility is shared by both.

## Exhibit B

**CENTRALISATION/DECENTRALISATION  
OF SI BUSINESS FUNCTION  
ANDERSEN CONSULTING**

RESPONSIBILITIES	COMMERCIAL	FEDERAL
Strategy and long-range planning	C	C
Marketing and promotion	B	C
Account management/sales	D	D
Contract review/approval	B	C
Project management/control	D	D
Implementation/development	D	D
Hardware/software acquisition	B	B
Systems operations (if applicable)	D	D

C = Centralised, D = Decentralised, B = Both

Centralised groups handle marketing, risk management assessment insurance, national contract purchasing, and other activities. Local offices provide the sales emphasis and most of the technical professionals necessary for systems integration projects.

Andersen Consulting has established a number of Systems Operations, Advanced Technology, and Business Integration Centres to support its activities.

- There are five Systems Operations Centres, which are large mainframe computer facilities staffed with project teams to run the day-to-day computer operations for an organisation. These centres are located in Chicago, Dallas, London, Toronto, and Stamford (CT).
- Advanced Technology Centres are staffed with technical experts and project managers who use workstations and network PCs connected to these centres for the automation of the application development process for clients. Advanced Technology Centres are located in Chicago, Dallas, Madrid, Manila, and Stamford (CT).
- Andersen Consulting currently has four sites for its Business Integration Centres which specialise in industry- and function-specific technology. These centres service as facilities where industry project teams from around the world build and demonstrate visions of the future through full-scale working technology exhibits (e.g., a factory floor or hospital of the future).

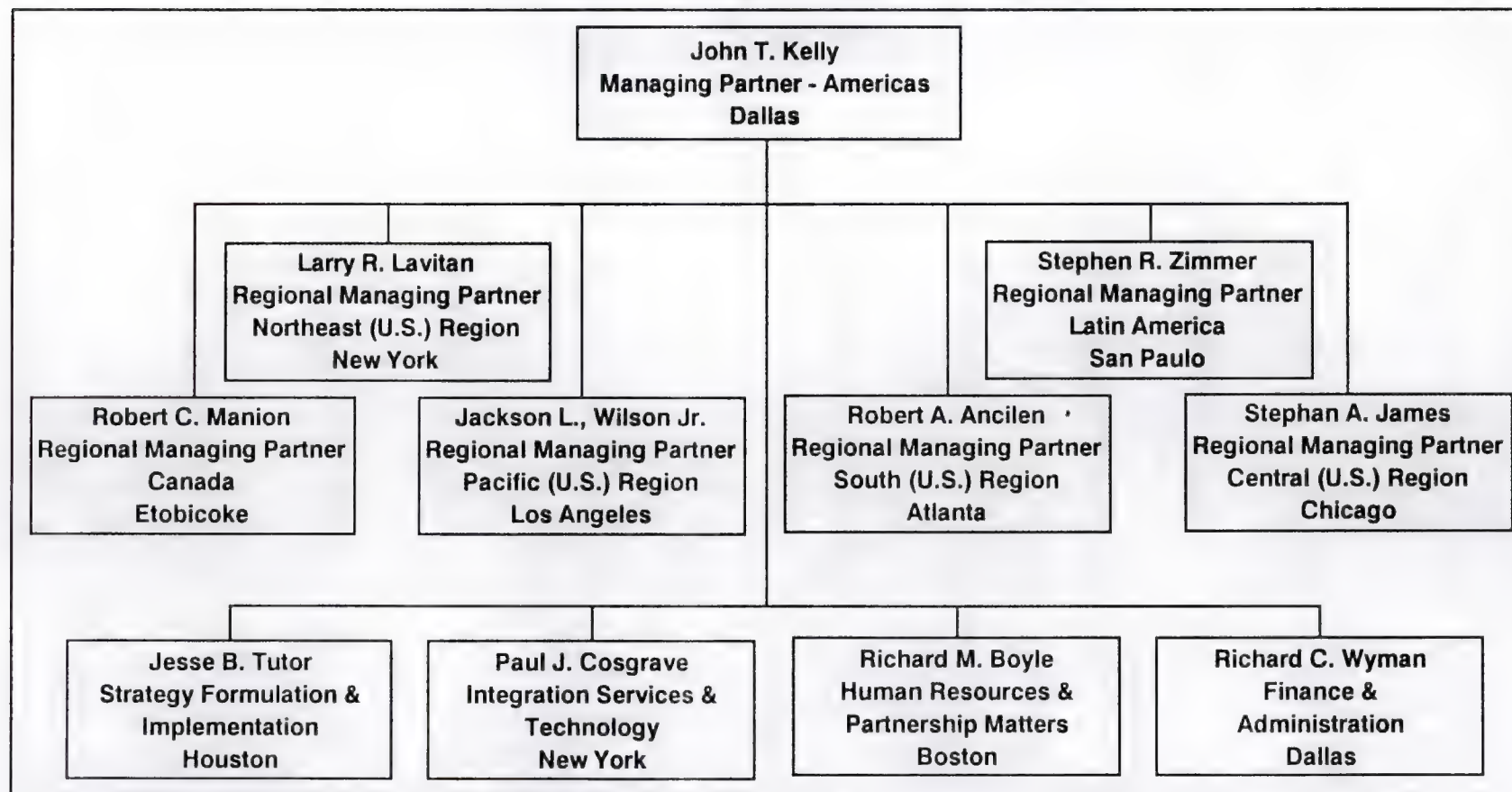
In 1989, Andersen Consulting reported a full-time worldwide IS practice staff of 18,000. INPUT estimated that 7,150 of the 11,000 individuals involved directly in the U.S. information systems consulting practice were directly involved in the SI practice. This number is based on the percentage of 1989 U.S. systems integration revenues. Exhibit C gives an indication of the distribution of resources between various SI-related activities.

**Exhibit C****DISTRIBUTION OF  
SI BUSINESS PERSONNEL  
ANDERSEN CONSULTING**

Capability	Percent
Management, strategy, planning, marketing	1
Legal/contract administration, finance	1
Project management and administration	5
Design/development/implementation	83
Hardware/software evaluation/acquisition	5
Hardware engineering	1
Sales	4

The matrix structure employed by Andersen Consulting in the U.S. is shown in Exhibit D, and that for Europe in Exhibit E.

## Andersen Consulting Americas Operations\*



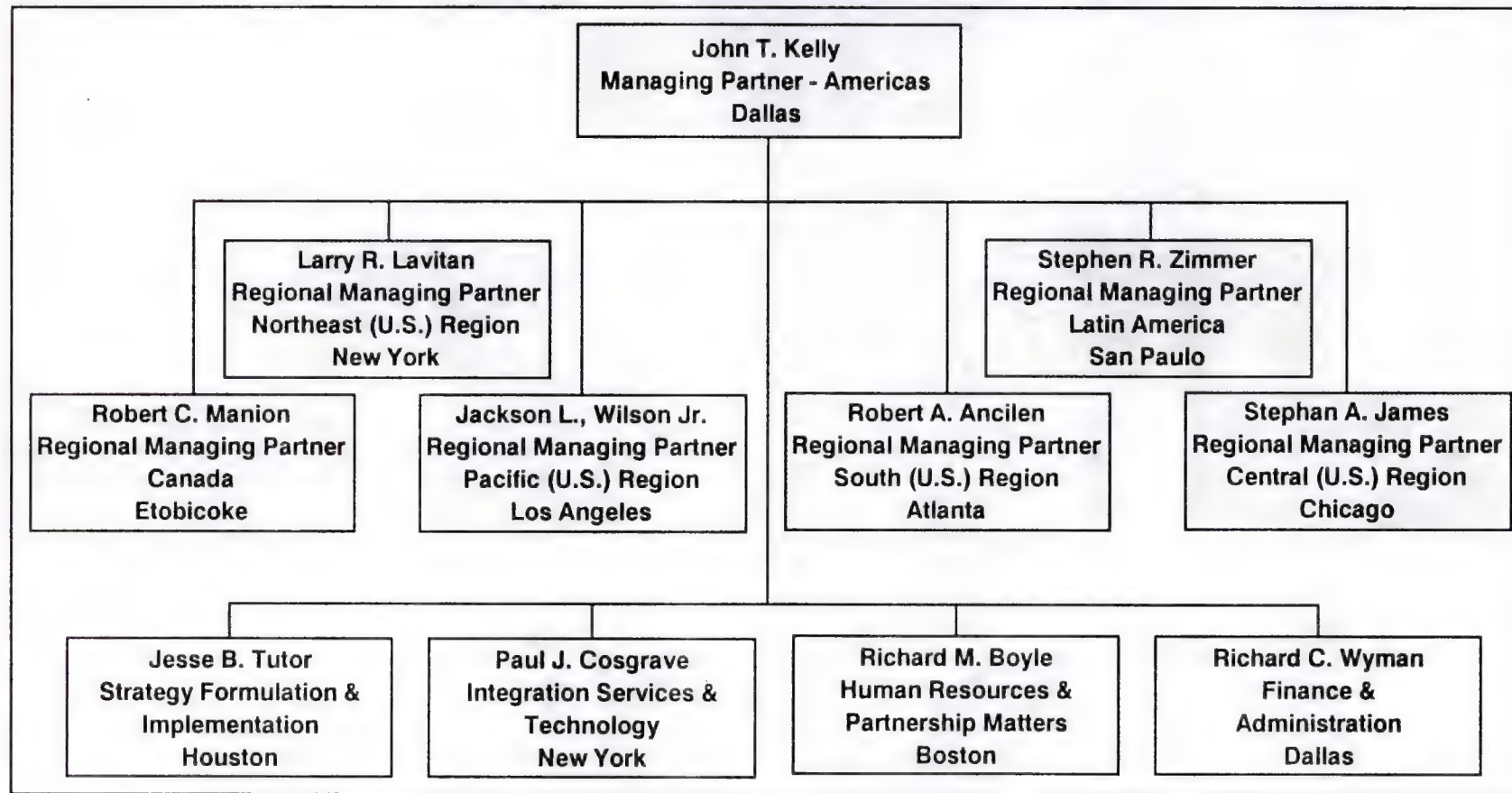
\*Shaded boxes indicate line operations. All others are classified under worldwide management.

Exhibit D

ANDERSEN CONSULTING

INPUT

## Andersen Consulting Americas Operations\*



\*Shaded boxes indicate line operations. All others are classified under worldwide management.

ANDERSEN CONSULTING  
Exhibit E

Andersen Consulting's headcount for Europe is shown in Exhibit F.

Exhibit F

**TWO-YEAR PROFESSIONAL HEADCOUNT (FYE 31/8/1990)**

	1989	1990	GROWTH (PERCENT)
EUROPE TOTAL	5,400	6,700	24.1

Andersen Consulting has maintained this growth almost exclusively through organic growth, with a firm policy of graduate recruitment and staff development. However they still have to recruit in first class experienced consultants for each market sector, and there are signs that this could become increasingly difficult. As the firm takes a larger and larger market share in its chosen sectors, so it is seeking an ever higher proportion of the available skill pool.

Andersen Consulting's services and products are offered through six major practices (the classifications are not specialists, but serve to organise Andersen Consulting's varied industry work). Each of the following practices is headed by a managing partner and staffed with consulting specialists who have developed industry-specific expertise:

- Financial Services (Financial Markets, Insurance, Retail Financial Services)
- Government
- Healthcare
- Products (Aerospace and Defense, Airlines, Discrete/Repetitive Manufacturing, Energy, Food/Consumer Packaged Goods, General Retail and Wholesale Distribution, and Process Manufacturing)
- Telecom Industry Group
- Utilities.

Andersen Consulting invested \$157 million (\$7,200 per consultant) on training during fiscal 1991.

Through the Professional Education Division, more than 250 courses are available to each Andersen Consulting consultant. By the time a consultant reaches the associate partner level, he or she will have put in more than 1,000 hours of training.

- The St. Charles (IL) Centre for Professional Education is the organisation's hub for internal training that has 120 classrooms accommodating more than 2,000 participants.
- Other worldwide training locations include Manila, Philippines, Singapore, and Veldhoven (the Netherlands).

### **Acquisition History**

The European business has expanded rapidly in recent years almost entirely through organic growth. Several small acquisitions have been completed in the last two years to add specialist skills and products. These include Computer Management (Norway), CMC (Spain), Rossmore Warwick (U.K.) and RPS (France).

In more detail, Andersen Consulting's recent acquisitions have been as follows:

- In September 1989, Andersen Consulting acquired Rossmore Warwick, a 25-30 person British engineering firm that helps design new factories and new process lines.
- In July 1989, Andersen Consulting acquired Courseware, Inc. of San Diego (CA). Terms of the acquisition were not disclosed.
  - Courseware provides computer-based training and training support services to clients in insurance, data processing, communications, real estate, defense, aerospace, and travel, as well as state and federal government. The company had 60 employees at the time of the acquisition and 1988 gross fees of \$5.2 million.
  - The operations of Courseware have been merged into Andersen Consulting's Change Management Services (CMS) practice.
- In January 1989, Andersen Consulting acquired McCormack & Dodge's PIOS manufacturing resource planning system. McCormack & Dodge employees who had worked on PIOS development and marketing were offered positions with Andersen Consulting. Terms of the purchase were not disclosed.
  - With an installed base of 75 sites, PIOS is used by a number of large defense contractors.

- The transaction is part of an agreement between McCormack & Dodge and Andersen Consulting under which the two firms will jointly sell McCormack & Dodge's Millenium financial and human resources software and Andersen Consulting's MAC-PAC family of manufacturing software products.
- Other 1989 acquisitions include:
  - Computer Management Associates, a consulting firm in Oslo (Norway)
  - Synerlogic, a Canadian consulting firm
  - CMC Consultores, a Spanish consulting firm.

### **Recent Major Projects**

Andersen Consulting reports that about 80% of its commercial systems integration clients come from its existing account base and about 20% from new prospects specifically solicited for SI. In the federal marketplace, the split is 50% from each source. Undoubtedly, the high percentage of repeat business in the commercial market reflects Andersen Consulting's long-term account relationships with larger firms, while the 50/50 split in the federal market is indicative of its more recent entry into that marketplace and the fact that the federal market is more RFP-driven. In both markets, Andersen Consulting claims that its business has been profitable.

In recent years, Andersen Consulting has moved from a position of mainly pursuing very large projects to soliciting smaller ones as well. INPUT estimates that Andersen Consulting wins almost 60% of the projects it actively bids on; and it has completed projects ranging from \$2 million to \$80 million (average size about \$10 million). Andersen Consulting's top commercial customers are concentrated in discrete and process manufacturing, telecommunications, state and local government, banking and insurance, airlines, and the federal government.

Although Andersen Consulting did not provide a list of specific projects, Exhibit G contains information on some of Andersen Consulting's key SI engagements.

## Exhibit G

## EXAMPLES OF ANDERSEN CONSULTING'S SI CONTRACTS

Company or Industry	Project Description	\$ Millions
Lockheed	Computer-aided layout/fabrication	3.0
Ashland Chemical	Order entry/inventory control	5.5
Ca. Dept./ Development Services	Cost recovery system	3.6
Social Security Administration	Integrated administrative and financial system	12.0
Electronics Industry	Circuit Board Test and Assembly	52.0
Utility Industry	On-line billing system	30.0
Retail Industry	Finance, Inventory, and sales	10.0
Northwest Airlines	Revenue accounting	N/A
Paris Bourse	Stock exchange clearing and settlement	N/A
Swiss Options and Financial Futures Exchange	To plan and implement electronic clearing and settlement system	N/A

In more detail, some of Andersen Consulting's key systems integration projects are as follows:

- Andersen Consulting is a systems integrator in an effort to develop an optical document image processing system for the Ontario (Canada) Ministry of Consumer and Commercial Relations. The system will capture the province's 10 million statistical records.

- Andersen Consulting helped Northwest Airlines integrate artificial intelligence, image processing, workstations, and other technologies to create a system that helps Northwest more accurately track passenger revenue and collect marketing information about customers' travel and spending patterns.
- For the 1992 Winter Olympics, Andersen Consulting has integrated the computer systems that will administer operations, results reporting, ticket selling, lodging, accreditation, and other functions.
- Andersen Consulting is one of three firms participating in the installation of a new accounting system for the state of Texas. Andersen will develop an executive information system decision support tool for the system.
- An integrated financial and administrative system is currently being developed for the U.S. Social Security Administration. The project is expected to be complete some time in 1992, having lasted 60 months at a cost of \$12 million.
- The Paris Bourse, the fourth largest stock exchange in the world, is carrying out a project to modernise its clearing and settlement procedures. Andersen Consulting's contract includes the interconnection of 300 banks and 50 brokers with the capacity to handle 600,000 transactions every day.
- Andersen Consulting was hired by the Swiss Options and Financial Futures Exchange (SOFFEX) to plan and implement the SOFFEX exchange from scratch. Andersen Consulting was engaged as the prime contractor to open a Swiss options and futures exchange, develop/install an electronic trading and clearing system to link directly with member back offices, and manage other areas necessary to open the exchange.
- Power station automation project for National Power (UK).
- Involvement in the specification and development of an automated network environment for the U.K. Department of Social Security.
- An order entry and inventory control system was designed and implemented for Ashland Chemical. The project was completed in 1989 at a cost of \$5.5 million.
- An integrated financial and administrative system is currently being developed for the U.S. Social Security Administration. The project is expected to be completed some time in 1993, having lasted 60 months at a cost of \$12 million.

- A computer-aided layout and fabrications system was established for Lockheed. The project was completed in 1987, lasted 10 months, and cost \$3 million.

In addition to systems integration, Andersen Consulting is active in systems management, strategic services, and change management services. Examples of projects carried out in these related areas are as follows:

#### Strategic Services:

Strategic Services helps clients develop market-driven strategies and align their business processes with those strategies in order to deliver value to customers.

Examples of work performed by the practice include the following:

- Competitive/market strategy: For a manufacturer of outdoor power equipment, Andersen Consulting developed and implemented a customer-driven strategic marketing plan and consumer strategy for the 1990s.
- Organisation and change strategy: Andersen Consulting helped a public transportation system make the transition from state administration to local control. Andersen planned the transition and designed a new organisation.
- Business operations strategy: For a multibillion dollar business unit of a major process manufacturer, Andersen Consulting streamlined the supply chain to simplify and speed the flow of products from manufacturer to distributor.
- Information and technology strategy: For a newly merged food products company, Andersen Consulting developed a strategy for integrating operations and information technology of the two previously separate businesses.

#### Change Management Services:

The Change Management Services practice helps organisations manage all elements of change.

- The philosophy behind change management is that the successful use of new technology depends on an organisation's ability to properly position, educate, and motivate its people to employ it.

- Using methodologies and frameworks for planning, designing, implementing, and maintaining change, Andersen Consulting seeks to help organisations develop well-organised, well-informed, highly skilled, and highly motivated people at all levels.

Client examples include the following:

- Andersen Consulting planned, designed, and developed technology-based training for the U.K. Department of Social Security in support of its migration from a pencil-and-paper operation to an automated networked environment.
- Andersen Consulting helped the Standard Chartered Bank of Hong Kong to revamp the bank's transactions systems throughout Asia. Andersen developed computer-based training for more than 3,000 employees to offer simulated practice and testing of more than 70 bank functions affected by the new system.

#### System Management:

Systems Management encompasses operations and network services, facilities management, applications management, software reengineering and renewal, and backup and recovery. Systems Management takes care of the daily needs of a client's systems so that the client can focus on its business. This service line is responsible for outsourcing deals in which a client turns over part or all of its data processing operations to Andersen Consulting.

Work in this practice area includes the following agreements:

- A \$200 million, 10-year agreement with Sun Refining & Marketing Co., under which Andersen Consulting acquired Sun R&M's Dallas Computer Centre, hired its employees, and assumed management of all Dallas Computer Centre's operations. (Contract signed October 1990).
- A \$50 million agreement with Voluntary Hospitals of America Inc. to install and manage a computer system that provides physicians and management at VHA member hospitals with comparative information on the cost and quality of patient care - even if their billing systems are different. (Contract signed fall 1990).
- Under a three-year, \$10 million contract, Andersen Consulting is managing the Medical Data Centre of the Milwaukee County Medical Complex. Andersen is responsible for computer operations, applications, maintenance, technical support, and applications development. (Contract awarded in September 1991).

- Under a five-year \$89 million systems management contract, Andersen Consulting has assumed all of British Petroleum Exploration Europe's (BPX) financial accounting services. In addition, BPX's 250 accounting services staff have been offered positions with Andersen Consulting and will be located in Aberdeen (Scotland).
- In January 1990, Andersen Consulting agreed to provide IBM SNA network support, systems software maintenance, and technical support for Dial Corp.'s applications programming staff. As part of this \$10 million, five-year deal, Andersen Consulting agreed to manage Dial's data centre in Phoenix and migrate operations to its Dallas systems operations centre.
- Other current U.S.-based systems management contracts are held by Andersen Consulting with Wickes Furniture, Chicago Tile, Maxxus, and United Medicorps.
- U.K.-based systems management clients include Standard Chartered Bank, Greenall Whitley (brewers), Yorkshire Health Authority, part of the Department of Social Security, DRG, and Banque Belge.
- Andersen Consulting was awarded a major systems management contract by London's International Stock exchange in April 1992, amid controversy that the contract did not go to open tender.

## Products and Services

### (i) *Technologies*

Andersen Consulting has developed a range of CASE tools. They were initially used internally by their IS consultants, then launched on the open market under the name FOUNDATION. This range operates in a wide range of IBM, Digital and Bull environments and consists of:

- Method/1
- Design/1
- Install/1
- Plan/1

FOUNDATION is an integrated, automated software development environment designed to support the entire life-cycle of application software development.

In 1991, the company stepped up its investment in computer-aided systems engineering (Case) to the tune of £35.3m for its Foundation strategy, pledging to spend a further £20.5m this year.

The company also announced its latest Foundation products for co-operative processing and the DEC Vax environment.

It claims the Install/1 version 2.0 is the first commercially available Case product to support DEC's version of IBM's Case AD/Cycle program, Cohesion, and generate DEC's ACMS transaction processing applications.

Andersen Consulting is also offering a client-server software engineering tool for the OS/2 environment following the release a few months ago of a co-operative processing version of Foundation for VAX/VMS.

Andersen says it is working to integrate the two products so that OS/2 and Windows clients can access OS/2, VAX or IBM mainframe servers. Prices for the product range from \$50,000 for a starter kit to \$1m for a large-scale project. Later this year Andersen's Method/1 methodology will offer rules for splitting applications among processors.

CO-OPERATE is an integrated methodology and software tool set for computer operations designed for the IBM MVS operating system.

FOUNDATION's components include the following:

- METHOD/1 is a LAN-based automated methodology that provides a systems development framework - from information planning to production systems support. The methodology provides support and guidance for several different development options. The project management component, MANAGE/1, includes work plan generation, project estimating, and quality assurance. METHOD/1 is integrated with DESIGN/1 and PLAN/1 and is accessible on-line. As of early fiscal 1992 there were 715 METHOD/1 installations.
- DESIGN/1 is a LAN-based set of analysis and design tools available in a number of environments. DESIGN/1 automates systems design tasks and techniques to improve productivity and design quality. Analysis and designers use DESIGN/1 to develop data flow diagrams, paint screens and reports, and perform conversational prototyping. The product is mouse-driven, provides an easily followed menu-driven structure, and facilitates the sharing of design data. DESIGN/1 supports the activities of METHOD/1 and can be customised to support other methodologies. As of early fiscal 1992, there were 915 DESIGN/1 installations.

- **INSTALL/1** is a development environment and application generator for DEC, IBM and Bull. **INSTALL/1** provides portability and reuse across multiple platforms because **INSTALL/1**-generated applications do not contain platform-specific logic. **INSTALL/1** also provides support for workstation-based generation and unit testing of on-line and batch applications, and a mainframe execution environment and services to support the development of batch applications. As of early fiscal 1992, there were 115 installations of **INSTALL/1**.
- **PLAN/1** is an automated LAN-based tool set for information planning and engineering. **PLAN/1** helps information systems professionals incorporate business strategies for planning systems development projects. Components include an information model, data model facility, decomposition diagram facility, data flow diagram facility, and matrix facility. As of early fiscal 1992 there were 25 installations.
- **FOUNDATION** for Cooperative Processing is an OS/2-based set of tools for developing peer-to-peer, client/server applications and distributed application processing, not just a frontware to existing applications. **FOUNDATION** for Cooperative Processing increases productivity through reuse of system components and facilities maintenance by generating applications from a shared repository. Released in fiscal 1992, the product supports OS/2 Presentation Manager clients and LAN and MVS/CICS server environments. Expanded availability will occur throughout 1992. As of early fiscal 1992 there were 20 installations.

Andersen Consulting also tries to stay at the forefront of technology and promotes "visions of the future" to senior executives as part of the process of convincing them of the importance of IS. Here the company's Business Integration Centres have an important role to play.

Andersen Consulting currently has three sites for its Business Integration Centres which specialise in industry- and function-specific technology. These centres serve as facilities where industry project teams from around the world build and demonstrate visions of the future through full-scale working technology exhibits (e.g. a factory floor or hospital of the future).

Business Integration Centres are located in Chicago, Dallas, and Atlanta, with planned sites in New York, Los Angeles, Houston, San Paulo, and Tokyo.

Andersen Consulting uses partnerships to gain access to the technologies such as imaging and smart cards required to support these demonstration centres.

Andersen Consulting also has a strong commitment to research and development, through formal organisations such as Technology Services, and through projects and facilities sponsored by local offices and other internal groups.

- In addition, service, products, and support facilities are sources of leading-edge ideas about products and the application of technology with clients.
- Despite recessionary conditions, in fiscal 1991 Andersen Consulting increased its research and development investment to approximately \$264 million, up from \$238 million the year before.

Technology Services is responsible for technology visioning and knowledge transfer. One of the group's primary responsibilities is developing emerging technologies for clients. Those technologies include artificial intelligence, image processing, telecommunications, and object-oriented development. This unit also establishes standard practices, develops practice methodologies, practice aids, and the FOUNDATION development tool. The group is organised as follows:

- Advanced Technology Group develops and disseminates technical speciality skills and provides direct support to local offices for client engagements. The group is organised into divisions, each of which specialises in a particular technology: New Age Systems (alternative architectures, workstation technology), Digital Equipment Corporation and AS/400, Knowledge-Based Systems Technology, Enterprising Systems, and Imaging.
- Network Solutions participates in client engagements or projects in telecommunications and network computing and provides training and worldwide support to the consulting practice.
- CSTaR (Centre for Strategic Technology Research) seeks to identify technologies and techniques solving particular classes of business problems.
  - CSTaR consists of three areas of research: human systems integration, decision technology, and software engineering.
  - Additionally, CSTaR is Andersen Consulting's liaison with Northwestern University's Institute for Learning Sciences and Microelectronics and Computer Technology Corp., a cooperative research venture involving 49 North American companies.
  - Research projects currently taking place in CSTaR include development of groupware and knowledge-based software engineering.

- FOUNDATION Development Group provides full-function CASE technology and associated services to the marketplace and consulting practice.
- The Advanced Development Group assists Andersen Consulting professionals in their use of new technology. Current programs include enhancing Andersen Consulting's capabilities with information engineering techniques, creating a new methodology for custom systems design and installation and incorporating workstation and object-oriented technology into the practice.
- Knowledge Transfer supports Andersen Consulting by providing knowledge transfer and training in key technical, functional, and industry areas.

Andersen Consulting's Business Integration Centres are working environments that demonstrate how technology, when integrated with a business vision and management sense, can change the way business is done.

The centres are used primarily for research and development, training client and internal personnel, and demonstrating technology solutions from Andersen Consulting and participating vendors of hardware and software.

Andersen Consulting's services are supported through two types of facilities - systems management centres and advanced technology centres - and network management services.

Systems management centres are large, mainframe computer facilities that support systems operations services.

Advanced technology centres (ATCs) are staffed with technology specialists, workstations, and computer networks to provide client support, marketing support, and research and development. The skills and knowledge of specialists at ATCs can be shared on multiple client projects, as opposed to having resources tied to one long-term engagement.

Andersen Consulting's Network Solutions practice provides a range of network integration and network management consulting services to support the organisation's systems integration and systems management activities.

- Network Solutions works with the Systems Management practice to identify potential outsourcing opportunities, orchestrate outsourcing arrangements, support client network migrations, and identify new network environments to better meet clients' changing information technology requirements.
- AANet is Andersen Consulting's primary telecommunications vehicle for meeting its information needs. In addition, AANet is available to support network outsourcing services. The network spans North America and provides coverage to Europe as well as select regions of Asia.
- In addition, Andersen Consulting has formed alliances with INFONET Services Corp. and SigmaNet to penetrate areas AANet does not access.
- Andersen Consulting continues to develop its network services capabilities, reflecting the organisation's commitment to the network outsourcing market.

(ii) *Industry Knowledge*

Industry knowledge is one of the keys to Andersen Consulting's success, and to promote the use of technology within industry, Andersen Consulting has nine technology exhibits running in five "Business Integration Centres". For example:

- At one Business Integration Centre, Andersen Consulting has designed a minifactory (located in Chicago, IL) that displays CIM techniques. The minifactory integrates the products from 35 different companies and produces an aluminium casting that holds a printed circuit board and plastic connectors.

Other technologies in the Chicago centre include expert systems, voice recognition, vision systems, Ethernet and MAP 2.1, personal workstations, touch screens, computer-aided design, computer-aided manufacturing, MRPII, group technology, robotics, material handling, cell control, computer numerical control, and bar code data collection.

- A second Business Integration Centre, also located in Chicago, contains SMART STORE 2000, a showcase of Andersen Consulting's vision for the food pipeline process through the retailer. The exhibit incorporates state-of-the-art hardware and software applied by more than 40 participating vendors and addresses food industry management concerns about the future.

- Andersen's LOGISTICS/2000 exhibit, in Atlanta, demonstrates how the integration of technology can benefit a logistics organisation. It includes an automated warehouse and offices for sales and customer service, inventory management, transportation management, and executive management.
- Another Business Integration Centre, Hospital of the Future, represents Andersen Consulting's vision of the systems technologies that will support the health care delivery system of the 1990s. Located in Dallas, the exhibit will serve as a permanent site for Andersen Consulting and more than 20 participating vendors.
- Also located at the Dallas Infomart are Andersen Consulting - The Retail Place, The Factory, ACES, and GEO-PLUS. The Retail Place is Andersen Consulting's fully operational Quick Response retail store. The exhibit demonstrates how Quick Response establishes new business strategies, relationships, and procedures to speed the flow of information and merchandise between retailers and vendors. The Factory is a working factory that shows manufacturing automation from order entry through distribution. ACES is Andersen Consulting's Engineering Systems exhibit, highlighting imaging technologies and document management functions applicable to a manufacturer as well as a financial service, insurance, or pharmaceutical company. GEO-PLUS demonstrates geographical mapping solutions.

In Europe, Andersen Consulting is particularly strong in the manufacturing - both discrete and process - and financial services sectors.

Andersen Consulting focus their attention on the critical understanding of their client's industry, seeing each sector as subject to a unique combination of forces affecting business decisions. The Market Sectors they identify with are:

**Financial Services:**

- Banking
- Capital Markets
- Insurance
- Asset Finance

**Industrial and Consumer Products**

- Automotive
- Aerospace & Defence Contractors
- Pharmaceuticals and Food Processing
- Oil and Gas
- Chemicals
- Electronics
- Retail and Wholesale Distribution

**Government and Services**

- European, National, Regional and Local Government
- Defence and Security Agencies
- Healthcare and Social Services
- Telecommunications
- Electric, Gas and Water Utilities
- Transportation and Hotels
- Leisure and the Media.

Across these markets there are a set of common management needs, recognised by Andersen as:

**Financial Management**

- Planning and Reporting
- Financial Control and Cost Management
- Treasury Management

**Materials Management and Logistics**

- End-to-end Pipeline Management

**Sales and Marketing**

- Sales and Market Analysis
- Customer Service Systems
- Database Marketing

**Executive Information Systems**

- World Class Management

*(iii) Key Application Products*

Andersen Consulting's key application software products are listed in Exhibit H.

## Exhibit H

**ANDERSEN CONSULTING -  
APPLICATIONS SOFTWARE PRODUCTS**

Product	Description
MAC-PAC	MRP-II product linking plant automation and manufacturing software. Several other MAC-PAC packages run within this series for specialised applications such as defence contracting.
DCS/Logistics	Manages customer service and logistics functions.
PROCESS/1	A production management system for process industry manufacturers.
PIOS	(Production and Inventory Optimisation System) On-line manufacturing control system acquired from McCormack & Dodge.
CELL-PAC	Factory floor cell control software.

MAC-PAC is an integrated, on-line distribution and manufacturing system that allows manufacturers to share information throughout their entire organisation. The entire flow of information can be defined and managed - from customer order to manufacturing, raw material purchase, and distribution.

- MAC-PAC runs on IBM and compatible mainframes under DOS, MVS.
- There are currently more than 120 MAC-PAC installations.

MAC-PAC/D is a specialised, fully integrated manufacturing enterprise management system for aerospace and defense contractors and other project-oriented manufacturers.

- The MAC-PAC/D family of products includes: MAC-PAC/D (manufacturing), IPD (engineering), PROCUREMENT/D (procurement), FACTORY MANAGEMENT/D (shop floor), and FINANCE/D (cost and financial).
- The products run on IBM and DEC mainframes. FACTORY MANAGEMENT/D also runs on DEC VMS and Hewlett-Packard open architecture platforms.
- There are currently 75 MAC-PAC/D installations.

MAC-PAC for the IBM AS/400 is a fully integrated, on-line manufacturing, distribution, and financial system that operates in a single or multiplant environment.

- The system supports discrete, just-in-time/repetitive, make-to-order, job shop, or a combination of these manufacturing environments. Multilanguage and multicurrency features are also included.
- There are currently more than 600 installations.

DCS/Logistics is an on-line, integrated system that supports the customer service, distribution, and logistics management functions of medium-to-large manufacturing and distribution organisations.

- DCS/Logistics for the IBM System 370 has 14 application modules. DCS/Logistics for the VAX has nine modules.
- There are currently more than 175 DCS/Logistics installations.

PROCESS/1, introduced in 1991, is a fully integrated product for process industry manufacturers. The PROCESS/1 client/server architecture supports multinational operations and provides features such as multicurrency, multilanguage, and unit-of-measure conversion. PROCESS/1 is available for DEC VAX, VMS Systems.

Designware for FOUNDATION is a cross between packaged software and custom-developed systems applications that provides a jump start on application development. Designware offerings include:

- CUSTOMER/1, a customer information model for the utilities industry
- WORK/1, work order management designware for the utilities industry
- INVEST/1, for institutional investors creating securities accounting and management systems
- LIFE/1, a suite of products, including planware (software for information planning) and designware, that supports the policy administration needs of life insurance companies.

In order to get clients involved in software research and development, Andersen Consulting also operates ASSIST, a user's group of its applications software and development tools. ASSIST membership is open to any licensed user of Andersen Consulting software products worldwide.

### Financial Information

Andersen Consulting's fiscal 1991 revenue reached \$2.26 billion, a 20% increase over fiscal 1990 revenue of \$1.88 billion. A five-year revenue summary is shown in Exhibit I.

#### Exhibit I

#### ANDERSEN CONSULTING FIVE-YEAR REVENUE SUMMARY (\$ MILLIONS)

ITEM	FISCAL YEAR					
	8/91	8/90	8/89	8/88	8/87	87-91 CAGR
Revenue	\$2,256.3	\$1,875.5	\$1,443.0	\$1,112.0	\$838.4	28%
Percent increase from previous year	20%	30%	30%	32%	32%	

Fiscal 1991 revenue growth was attributed to the following:

- The organisation's Europe/Middle East/Africa/India region showed the strongest growth in U.S. dollars (37%), followed by Asia/Pacific (25%), and the Americas (10%).
- Growth in Europe comes from a strong base of work in Western Europe with clients such as Thames Water, the 1992 Winter Olympics, and the U.K. Department of Social Security.
  - The organisation also continues to make inroads in Eastern Europe. In the past year, Andersen Consulting has advised the Soviet Union on the distribution of bread in Moscow, announced a large contract with FSM (a major Polish automobile company), and helped implement a cellular telephone infrastructure for Hungary, among other initiatives in that region.
  - The Americas, Andersen Consulting's most mature market, continues to feel the effects of a recession that has affected other markets.
  - Andersen Consulting believes it has succeeded in Asia/Pacific because it varied its activities by industry and service lines. When a recession hit Australia, business was unhurt because of a variety of work across the region.
- Of Andersen Consulting's six major industry practices, Healthcare showed the strongest growth over fiscal 1990 (45%). Growth rates for the organisation's other industry practices were as follows: Utilities, 34%; Government, 32%; Telecom Industry Group, 22%; Financial Services, 21%; and Products, 16%.

**Market  
Analysis**

A two-year summary of revenue by industry market, as provided by Andersen Consulting, is shown in Exhibit J.

**Exhibit J**

**ANDERSEN CONSULTING  
TWO-YEAR SOURCE OF REVENUE SUMMARY  
(\$ MILLIONS)**

	FISCAL YEAR			
	8/91		8/90	
	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Products (a)	\$971.0	43%	\$834.5	44%
Financial services (b)	588.6	26%	486.1	26%
Government	283.2	12%	215.4	11%
Utilities	154.6	7%	115.3	6%
Telecom Industry Group	128.4	6%	105.7	6%
Health care	68.0	3%	47.0	3%
Other	62.5	3%	71.5	4%

(a) *Includes aerospace and defense, airlines, discrete/repetitive manufacturing, energy, food/consumer packaged goods, general retail, and wholesale distribution.*

(b) *Includes retail financial services, financial markets, and insurance.*

Approximately 48% of Andersen Consulting's fiscal 1991 revenue was derived from the U.S. and the remainder from international sources, as shown in Exhibit K.

## Exhibit K

**ANDERSEN CONSULTING**  
**TWO-YEAR GEOGRAPHIC SOURCE OF REVENUE SUMMARY**  
**(\$ MILLIONS)**

	FISCAL YEAR			
	8/91		8/90	
ITEM	REVENUE \$	PERCENT OF TOTAL*	REVENUE \$	PERCENT OF TOTAL*
Americas				
- U.S.	\$1,089.2	48%	\$999.3	53%
- Canada	52.3	2%	41.9	2%
- South America	46.0	2%	43.8	2%
- Mexico	5.6	-	2.9	-
	<u>1193.1</u>	<u>52%</u>	<u>1087.9</u>	<u>57%</u>
Europe/Middle East/ Africa/India	907.5	40%	662.8	35%
Asia/Pacific	155.7	7%	124.8	7%
<b>TOTAL</b>	<b>\$2,256.3</b>	<b>100%</b>	<b>\$1,875.5</b>	<b>100%</b>

\* Note: Does not add to 100% due to rounding.

Exhibits L to N provide breakdowns of Andersen Consulting's 1990 revenues in Europe by sector, country and delivery mode.

## Exhibit L

**TWO-YEAR FINANCIAL SUMMARY (FYE 31/8/1990) (\$ MILLIONS)**  
**BY MAJOR MARKET SECTOR**

SECTOR	1989 \$M	1990 \$M	1989-90 GROWTH (PERCENT)	PERCENT OF 1990 TOTAL
Industrial & Consumer Products	183.2	246.0	34.3	38
Financial Services	170.3	238.2	39.9	36
Government & Healthcare	62.3	92.1	47.8	14
Telecommunications & Utilities	23.8	39.7	66.8	6
Other	19.3	36.9	91.2	6
<b>EUROPE TOTAL</b>	<b>458.9</b>	<b>652.9</b>	<b>42.3</b>	<b>100</b>

Their relatively unique combination of skills is providing Andersen Consulting with a strong growth record, averaging well above 30% per year for the last five years in Europe.

## Exhibit M

**FINANCIAL ANALYSIS BY COUNTRY, 1990**

COUNTRY	\$M	PERCENT
United Kingdom/Ireland	183	28
Spain	130	20
France	120	18
Italy	80	12
Germany/Austria	55	8
Scandinavia	35	5
Benelux	25	4
Switzerland	15	2
Portugal	10	2
<b>EUROPE TOTAL</b>	<b>653</b>	<b>100</b>

## Exhibit N

**MARKET ANALYSIS BY DELIVERY MODE**

DELIVERY MODE	\$M	PERCENT
Non-IT Consulting	60	9
Professional Services	270	41
Software Products	30	5
Systems Integration	270	41
Systems Operations	25	4
<b>EUROPE TOTAL</b>	<b>653</b>	<b>100</b>

Exhibit O provides details of Andersen Consulting's systems integration revenues worldwide.

## Exhibit O

KEY PARAMETERS OF ANDERSEN CONSULTING'S  
CONSULTING/SI BUSINESS

PARAMETER	U.S.	TOTAL
IS practice revenues <sup>1</sup>	\$800 M	\$1,443 M
IS practice personnel	11,000	18,000
Systems Integration revenues <sup>1</sup>	\$560 M	\$770 M
Systems Integration practice personnel <sup>2</sup>	7,150	Unknown

1 Fiscal year August 31, 1988 to August 31, 1989.

2 Calculated by INPUT.

## Company Strategies

### (a) Company Direction

Andersen Consulting wants to gain and maintain position by being the preeminent provider of solutions to "top" organisations worldwide. The focus is strictly on partnering to provide solutions. Although not explicitly stated in the interview process, INPUT believes that Andersen Consulting sees itself as taking leadership as the "respected consultant/provider of strategic information systems".

From a business perspective, Andersen Consulting sees the revenue and profits from systems integration as a primary motivator for development of the business, along with control of account base and the need to respond effectively to existing and new customer demand. As would be expected, "dragging" hardware and follow-on facilities management contracts are not of primary interest, although the latter has become more important as competition with IBM and EDS becomes more intense.

The backbone of Andersen Consulting's marketing approach is its vertical business focus and business process orientation. The process is targeted at developing high-level business solutions and converting them into the application of information technology. Andersen Consulting was one of the first, and clearly is one of the most successful, systems integrators to approach the "strategic systems" market. The Andersen Consulting "process" is at the heart of each project. Andersen Consulting understands the value of developing relationships with high-level managers in target firms and industries and very effectively utilises referral selling at these levels. Andersen Consulting's demonstrated capability of dealing with projects over \$50 million makes it one of the few commercial systems integrators that can make that claim.

In addition, as part of its marketing process, Andersen Consulting has developed and utilises four Business Integration Centres which features its product offerings. The Chicago, IL centre for CIM and JIT manufacturing environments could be considered a "showcase" example.

Andersen Consulting's primary positioning with customers/prospects is to promote its ability to apply information technology to achieve competitive advantage. Andersen Consulting uses this consistent theme in combination with its in-depth vertical industry expertise to present itself as a number-one seller of business solutions. Andersen Consulting has invested heavily in recent years in developing its technological expertise. Though this is still not a primary positioning point, it certainly plays a role when presenting the entire package to the customer. INPUT believes these capabilities will become more significant in the future.

Finally, INPUT believes that Andersen Consulting enjoys a somewhat unique marketing position among leading systems integrators which is worthy of comment. Andersen Consulting frequently "writes" the RFP, at least in the figurative sense. Andersen Consulting's business consulting skills often give it entry to the prospect's environment long before a solution or even, at times, the problem, has been defined. Operating from a high-level position as a consultant and supported by the FOUNDATION methodology, Andersen Consulting has often closed the business before it has been opened. As a full-service provider, Andersen Consulting is a logical selection for implementor once the consulting is done. Exhibit P summarises Andersen Consulting's marketing strategy.

#### Exhibit P

##### ANDERSEN CONSULTING MARKETING STRATEGY

- Positioning: strategic systems, business expertise
- Vertical market focus for commercial marketplace
- Strong methodology
- Promotion: referral, technology centres
- Primary competitors: IBM, EDS, CSC

INPUT expects that Andersen Consulting will continue to develop partnerships with leading application software product vendors to gain access to the building blocks required for systems integration projects. Andersen Consulting will also endeavour to maintain a high level of capability in leading technologies such as imaging and artificial intelligence and will again use partnerships to achieve this aim.

As well as its traditional project capability, Andersen Consulting is targeting systems management opportunities. However the company professes a low level of interest in platform operations contracts unless these are accompanied by application development or business operations activity. Andersen Consulting is believed to be now targeting its business operations services at functions other than accounting such as personnel management and marketing.

*(i) Consulting*

INPUT believes that overall, Andersen Consulting has significant capabilities in the areas that are most important for winning and executing SI contracts. Its focus on the top end of the life cycle and perceived strengths in understanding business solutions in many industry sectors gives it an edge on the market that few others have.

Andersen Consulting's principal skills are in providing "front end" management consultancy to clients and then following through with other IS professional services and complex systems integration projects to fully implement new information systems. Its management consultancy capability centres on business integration - the inter-relationship of these four fundamental aspects of business:

- Devising both business and IT strategies in fast changing markets.
- Planning, developing and implementing computer systems and networks with appropriate IS technology.
- Managing and controlling large computer centres and telecommunications networks.
- Managing the resulting changes and their impact on people within the business organisation.

The range of services Andersen Consulting offers includes:

**Strategic Services:**

- Strategic Planning and Studies
- Marketing and Sales Planning
- Competitive Studies
- Organisation Studies
- Total Competitiveness
- Information Planning.

**Change Management Services:**

- Organisation Change
- Human Resource Management
- Knowledge Transfer
- Technology Assimilation.

**Integration Services:**

- Strategy Integration
- Systems Integration
- Systems Management.

Strategic Services include analysing clients' marketplace and competitive position, identifying strategic alternatives, establishing a formal direction, and monitoring the execution of the strategy. Andersen Consulting assists in forming and managing the strategic planning process and providing marketing, competitive and organisational analyses, and conducting profit planning programs.

Systems Integration and Systems Management Services include total system solutions and assistance throughout the system's life cycle, including:

- Planning, design, application and systems software programming
- Procedures and computer-based training
- Hardware and communications acquisition and installation
- System management, system maintenance, project and systems management
- Implementation assistance, including a development methodology, productivity aids, customised packaged software, applications systems software programming, training, and project management.

The Change Management Services practice of Andersen Consulting works with organisations to position people, processes, and technology for maximum, continuous benefit. Using a practice methodology that encompasses designing, implementing, and maintaining the changes made, each of three integrated service lines addresses the essential ingredients of change:

- The organisation (Organisation Change)
- The individual (Knowledge Transfer)
- The integrated use of technology (Technology Assimilation)

*(ii) Geographic Coverage*

Andersen Consulting is a major player in systems integration in both the U.S. and Europe. However two-thirds of the organisation's European revenues are derived from the United Kingdom, Spain, and France. Andersen Consulting still needs to increase its presence elsewhere in Europe and in particular in Germany.

The firm is active in central and eastern Europe with German and Austrian offices handling activity in Hungary and Czechoslovakia, and the U.K. office handling Poland and the U.S.S.R.

Andersen Consulting has 151 offices in 46 countries, including 75 offices in the Americas, 58 offices in Europe/Middle East/Africa/India, and 18 offices in Asia/Pacific.

*(iii) Partnerships*

Andersen Consulting has established some significant alliances that strengthen the firm's SI capabilities. As with most other major systems integrators, Andersen Consulting utilises both long-term and project-by-project alliances. Andersen Consulting believes that the use of alliances supports its strategy for SI by:

- Providing hardware at competitive prices
- Giving it early access to new technologies
- Providing assistance in financing projects
- Supplementing areas where it has limited internal capability, such as maintenance support and worldwide telecommunications.

The majority of its longer-term alliances have evolved from working with particular subcontractors or partners on a repetitive basis. Other alliances have developed as a result of Andersen's strategy to develop industry-specific software.

The alliances with hardware manufacturers - Hewlett-Packard, for distribution and marketing applications, and IBM - effectively support Andersen Consulting's thrust into financial and manufacturing markets. Andersen Consulting works with DEC as well. Exhibit Q provides examples of Andersen Consulting's strategic alliances in systems integration.

## Exhibit Q

**ANDERSEN CONSULTING - SI STRATEGIC ALLIANCES  
(LIMITED SAMPLE)**

Product	Description
Hardware	<div>IBM</div> <div>Hewlett-Packard</div> <div>Pyramid Technology</div> <div>DEC</div> <div>Tandem</div> <div>Sun Microsystems</div> <div>Texas Instruments</div> <div>AT&amp;T</div> <div>Motorola</div>
Applications Software	<div>UCCEL/CAI</div> <div>MSA</div> <div>McCormack &amp; Dodge</div> <div>SAP (Financial)</div> <div>Inference Corporation</div> <div>IBM</div> <div>American Software</div>
Systems Software	<div>IBM</div> <div>AION (Expert Systems)</div>
Cooperative Marketing	Aetna (Insurance)
Networking/ Telecommunications	Infonet

In late 1989, Andersen Consulting became a remarketer of Sun Microsystems' entire line of computers and software. A newly formed unit, New Age Systems Group, will handle Sun-based commercial integration projects.

A central Application Products Organisation markets and supports Andersen Consulting's software products, coordinates artificial intelligence and telecommunications centres of expertise in support of client projects, and operates a software intelligence group.

Andersen Consulting's Software Intelligence Group is responsible for gathering, evaluating, and disseminating information on applications software products and vendors; working closely with software vendors to enhance their existing products; informing firm personnel of new applications software products, enhancements to existing products, and software industry trends; helping clients benefit from the most current knowledge and most recent hands-on experiences of firm personnel who have worked with packaged software products; supporting firm professionals on client projects; and developing methodologies and tools to help ensure successful implementation of applications software-based systems.

- The group has implemented a number of relationships with software products companies through the OASIS program. This program provides Andersen Consulting with in-depth knowledge of the products of key software companies such as Dun & Bradstreet Software Services, SAP, Quality Software Products, PeopleSoft, and Lawson Associates. Andersen Consulting works on major projects implementing those companies' software products.

Andersen Consulting also maintains a number of partnerships to provide access to advanced technologies. For example in Europe, Andersen Consulting has partnerships with many of the leading imaging systems suppliers.

Other examples of alliances include:

- In 1991, Andersen Consulting allied with Microsoft to provide services to clients in developing client/server applications.
- In 1990 Andersen agreed with Xerox to provide its clients with products from the new Xerox DocuTech Publishing Series.

Andersen's Business Integration Partnership (BIP) program establishes and manages alliances with companies in order to combine systems and specialised services. Current partners under the BIP program include Amdahl, Apple, AT&T/NCR, BBN Software Products, Compaq, Dell Computer, Digital Communications Associates, DEC, FileNet, Foxboro, Grid Systems, Groupe Bull, Hewlett-Packard, IBM, Infonet, Informix, Microsoft, Norand, Novell, Palette Systems, Plexus, Pyramid, Sun, Sybase, Symbol, SynOptics Communications, Systems Centre, Tandem, and Toshiba.

### **(b) Strengths and Weaknesses**

Andersen Consulting has an excellent overall image as a systems integrator. Strengths include its ability to manage the client's planning process, the resources to handle very large projects, and its focus on professional services. Its ongoing investments in key applications software products and the continued development and education of its professional staff will continue to build the positive momentum it has in the marketplace.

Not to be overlooked on the positive side is Andersen Consulting's ability to formulate client requirements. Focusing on the high end of the life cycle, Andersen Consulting frequently "write" the RFP, so to speak - a position that many of its competitors should envy. The result is a very high success rate in winning contracts, which minimises marketing and bid preparation costs.

Andersen Consulting has a full in-house capability at the high end of the development life cycle, and also as might be expected, makes heavy use of alliances in the areas of systems software, hardware, custom and communications hardware, and hardware maintenance.

Business Consulting, Design, and Project Management is the area of Andersen Consulting's strength. The combination of a solid methodology along with uniform and effective training of its personnel produces consistent, if not always exceptional results. Consistent with the professional services orientation of the firm, education, training, and documentation are also significant skills that it markets heavily as part of its capabilities.

Packaged Applications Software is clearly an area of strength for Andersen Consulting. It has made significant investments in the development of numerous packages. The aggressive marketing of these packages, along with the development and utilisation of strong alliances to fill the gaps, gives Andersen Consulting a very strong position within its competitive group in the applications software area.

Andersen Consulting's strengths far outweigh its weaknesses as a systems integrator. In fact, its strong set of capabilities in the high end of the life cycle serves to reduce significantly its dependencies on outside suppliers for the high-risk elements of most SI contracts. Its strengths in software development, project management, and packaged systems and applications software have contributed measurably to the firm's success. The weaknesses in service and repair and, to some degree, design integration, are not critical to success in the business, particularly in the vertical markets where Andersen Consulting has focused.

In those areas where Andersen Consulting might be perceived as being weak, there are plans in place.

- The inherent problem with the decentralised partnership profit centre structure is being addressed by the recent round of reorganisations.
- The "by the book" (perceived by some as overly structured) approach to design and engineering is fading as higher-level and better-trained consultants enter the SI practice.
- A weak technical image is being overcome by heavy investment in proprietary technology.

The future looks bright for Andersen Consulting. INPUT expects its market approach to become more aggressive as the reorganisation of the consulting activity falls into place. INPUT anticipates increased focus on Europe and Asia. In addition, the market can anticipate further heavy investments by Andersen Consulting in technology to support both vertical and, to a lesser extent, cross-industry markets.

#### (d) Conclusions

Andersen Consulting's strengths include contacts at the vice-presidential or presidential level at customer companies. In fact, each IS partner is expected to be able to contact senior officers at their top accounts. In addition, Andersen Consulting offers extensive in-house staff training and has a strong service-oriented culture. Andersen Consulting has developed a variety of strong third-party hardware and software vendor relationships to support it in its information services consulting business.

INPUT does not believe that Andersen Consulting has any significant weaknesses. However, some problems do exist. First Andersen Consulting's partnership culture has traditionally worked against change. However, recent developments within the organisation are likely to minimise the effect of this problem. Second, Andersen Consulting's approach to systems integration has been heavily business-process-oriented. Top down in nature, the approach is not suitable for every client. Finally, Andersen Consulting's strengths in the international component of the IS/SI market have significantly lagged behind the U.S. operation's. However, Andersen Consulting is rapidly building these capabilities. Exhibit R summarises INPUT's assessment of competitive strengths and weaknesses as they apply to the systems integration business.

#### Exhibit R

ANDERSEN CONSULTING'S COMPETITIVE STATUS

SI Strengths	SI Weaknesses
High-Level client contracts	Partnership culture
In-house training capability	Process orientation
"Professional service culture"	Limited European coverage
Strong third-party relationships	

Overall INPUT expects Andersen Consulting to remain one of the major players in the systems integration market. The key determinant of success in much of the systems integration market is the vendor's credibility in business consulting with senior executives. In this respect, Andersen Consulting has successfully differentiated itself from its major competitors.

Andersen Consulting has been one of the most phenomenal knowledge-related businesses of the last 20 years. Revered at one moment by its competitors in the information services marketplace, and not taken seriously at others, the consulting operation has consistently shown significant growth rates and defeated the competition on a regular basis.

**(e) Strategic Assessment - Andersen Consulting**

Andersen Consulting is the one Big Six accounting company that has achieved really significant inroads into the computer related professional services business. This reflected a long held management orientation and culture emphasising the wider business issues faced by its audit clients and dates back to its founder Arthur Andersen.

During the 1980's Andersen Consulting itself was set up as a separate organisation in an attempt to resolve the ever present 'partner' related conflicts in its business. During this time Andersen developed significant presence in addressing the systems integration needs of clients firstly in the U.S. and subsequently in Europe. However Andersen Consulting's partner structure has led to a patchy performance across European countries and its strong reliance on marketing relatively low-level information systems personnel impacted its performance during 1991 in some countries including the U.S.

Andersen Consulting has persued the logic of its business approach into the area of systems operations or 'outsourcing' only to run up against increased needs for partner commitment for capital and a need for 'process' as opposed to 'project' skilled people.



## COMPANY PROFILE

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### **AT&T**

550 Madison Avenue  
New York  
NY 10022  
United States  
Tel: 1 212 605 5500

Chairman and Chief Executive: Robert E. Allan  
Status: Public  
Number of Employees: 273,700  
Revenue (FYE 31-12-90): \$37,285 million

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### **The Company**

AT&T is the leading provider of telecommunications services and equipment in the U.S. In 1990, AT&T's total revenues reached \$37.3 billion. AT&T operates the largest switched long-distance voice network in the U.S. and manufactures and distributes telephone switching equipment. In addition, AT&T sells and leases voice and data business equipment. AT&T provides a wide variety of international network services.

As a communications company, AT&T is still the largest seller of switched telecommunications services, with more than half of the U.S. market. AT&T is also the strongest provider of national communications services, but faces growing competition from two sources: independent services providers such as Sprint and MCI, and companies such as Sears and some of the larger hotel/motel chains, which are implementing national networks primarily for their own use but are including spare capacity for growth and for resale. AT&T remains the major supplier of central office switching equipment, but is experiencing increasing competition from companies such as General Telephone, Northern Telecom, and Fujitsu. Since divestiture, AT&T has lost market share in the end-user equipment market to the Bell Operating Companies and in the third-party (largely foreign) market. It has become much more aggressive in marketing and pricing its products over the last year.

In 1989 AT&T acquired Istel. Istel started life in 1979 as BL Systems Ltd. It was formed from the IS department of British Leyland creating an organisation dedicated to computing, communications and systems services. The company was wholly owned by British Leyland (and subsequently the Rover Group).

Istel was privatised in June 1987 in a management-led employee buyout from the Rover Group. The share ownership of the company following the privatisation was as follows:

Senior management	38%
Employees	28%
Institutional investors	34%

In 1989, AT&T acquired Istel for £ 180 million and the company was renamed AT&T Istel Ltd.

AT&T Istel's main systems integration capability lies in the company's computer-integrated manufacturing (CIM) expertise.

AT&T Istel's skills and experience in the CIM area come mainly from its past association with the Rover Group companies. It is also active in the health, travel, financial, retail and distribution sectors, although to a lesser degree.

In 1991, AT&T acquired NCR in a hostile take-over valued at \$6 billion.

### Organisational Structure

Both NCR and AT&T Istel remain as autonomous subsidiaries within AT&T.

In the U.S., AT&T's organisation has shifted from highly centralised with matrixed support to largely decentralised. It is interesting to note that in its operation in the commercial SI market, AT&T operates most functions in both centralised and decentralised styles, with few functions either wholly decentralised or centralised. It has implemented a major change in its SI service by decentralising its project management and much of its implementation capability. Like IBM, it recognises the need to get the implementors close to or on the client's site. In the federal SI market, however, AT&T responds to the federal penchant for dealing with a single manager on all issues of consequence. In the federal sector, AT&T can operate in essentially fully centralised style, as shown in Exhibit A.

#### Exhibit A

AT&T BUSINESS FUNCTIONS  
CENTRALISED OR DECENTRALISED

RESPONSIBILITIES	COMMERCIAL	FEDERAL
Strategy, long-range planning	C	C
Marketing & Promotion	B	C
Account management, sales	D	C
Contract review & approval	B	C
Project management & control	D	C
Implementation & development	B	C
Hardware/Software acquisition	B	C

C = Centralised, D = Decentralised, B = Both

AT&T currently reports approximately 400 full-time employees dedicated to SI. This is not surprising; AT&T is a relatively new entrant into the separate SI market. Exhibit B shows the distribution of AT&T staff across the various SI activities.

Exhibit B

Capability	Percent
Management, strategy & planning	10
Legal support/contract administration	5
Project management	10
Systems development/implementation	40
Hardware/software evaluation/acquisition	15
Hardware engineering	10
Sales	10

NCR's Systems Integration and Support organisation is an independent division of NCR. Like most SI organisations, NCR uses a matrixed management style that permits some facets of its management to be centrally controlled and other facets to be locally controlled (i.e., decentralised). Exhibit C shows how NCR makes use of centralised/decentralised management in the listed areas.

Exhibit C

## CENTRALISED VERSUS DECENTRALISED MANAGEMENT

RESPONSIBILITIES	COMMERCIAL	FEDERAL
Strategy and long-range planning	C	C
Marketing & Promotion	C	C
Account management, sales	D	D
Contract review & approval	C	C
Project management & control	D	D
Implementation & development	D	D
Hardware/Software acquisition	C	C

C = Centralised, D = Decentralised

NCR admits to about ten times more core staff (90) in its commercial SI efforts than its federal SI efforts (10). In addition, it uses its field organisation to supplement its core staff.

NCR chose not to disclose any detailed information about its SI organisation, except for noting that Paul Thurman (head of Systems Integration and Support) reports to Gary Burnett, Vice President, Customer Services Division.

AT&T Istel is organised into a number of subsidiaries some addressing vertical markets and some addressing horizontal markets. These include:

AT&T Istel Automation Ltd  
AT&T Istel Motor Industry Services Ltd  
AT&T Istel Financial Services Ltd  
AT&T Istel Visual Interactive Systems Ltd  
AT&T Istel Deritend Ltd  
AT&T Istel Impcon Solutions Ltd  
AT&T Istel Global Messaging Services Ltd  
AT&T Istel Computer Systems.

Systems integration projects are handled by the relevant subsidiary. For example, AT&T Istel Automation carries out systems integration projects within the manufacturing sector.

## Acquisition History

AT&T acquired Istel in 1989 and NCR in 1991.

AT&T Istel has a strategy of increasing its geographical coverage and building up a comprehensive industry-wide range of products and services by acquisition. So far, the company has achieved little significant geographic expansion outside the UK, but has significantly expanded its range of products and services through the acquisition of companies in the UK.

In February 1992 AT&T Istel agreed to acquire French professional services vendor Dataid for approximately \$95m. Dataid is a professional services company providing a wide range of activities from management systems, manufacturing, scientific and technical, and facilities management.

This is spread over the market sectors of manufacturing, banking and insurance, retailing and administration services, defence, space and telecommunications.

Dataid is headquartered in Paris and has a network of offices in the Paris area as well as throughout France. It also has subsidiaries in Belgium and Luxembourg.

Acquisitions in 1990 and 1991 include:

- Computer Systems Development (CSD) - a vendor of production management software products for the discrete manufacturing sector
- Daton Systems Ltd - a Unix based systems house
- WP Associates - a supplier of Oracle based applications
- Chorus Software - a supplier of financial accounting software
- Infoplan - a German company specialising in the manufacturing sector.

Other acquisitions by AT&T include:

- A joint venture with GTE Corporation (GTE) to develop new technology and capabilities for GTE's digital switching systems. AT&T has a 49 percent interest in the new company, called AG Communications Systems Corporation, acquired at a cost of approximately \$112 million. Under the agreement, AT&T's ownership will increase to 80 percent in 1994 and to 100 percent in 2004.
- Two divisions of a subsidiary of Pacific Corp Financial Services Inc. broadening AT&T's financing capabilities and customer base for franchise and media businesses and for certain manufacturers.
- U.S. Instrument Rentals Inc. (Instrument Rentals). With assets of approximately \$116 million at acquisition, Instrument Rentals broadens AT&T's offerings to customers for electronic, chemical and analytical test equipment as well as data equipment.
- Certain net assets of the Business Services Group of Western Union Corporation to enhance AT&T's global electronic messaging capability. The acquired operations provide international and domestic telex, packet network and electronic messaging services.
- Completing the acquisition of Paradyne. Paradyne is engaged principally in developing, manufacturing and servicing data communications equipment.
- Eaton Financial Corporation. Eaton is an equipment financing company.
- 20 percent interest in Italtel, S.p.A. (Italtel), a manufacturer of public and private telecommunications systems based in Italy, in exchange for a 20 percent interest in AT&T Network Systems International B.V. and \$135 million cash. AT&T and Italtel will jointly pursue contracts to supply network equipment in and outside of Italy.

- In 1990, AT&T increased its stake in Sun Microsystems Inc. to 18.8%.
- In 1990, AT&T increased its ownership of AT&T Network Systems to 80.5%.
- In 1990, AT&T exchanged its equity investment of 100 million shares of Olivetti for newly issued voting and non-voting shares of Compagnie Industriale Riunite S.p.A. (CIR). CIR is an Italian holding company with investments in information technologies, publishing, financial services and automotive components. In the second quarter of 1990, AT&T sold the non-voting shares of CIR for \$175 million. AT&T still hold the CIR voting shares as an investment.
- In 1991, it is believed that AT&T was negotiating to take an equity stake in Mercury Communications Ltd.

### Recent Major Projects

Since the beginning of 1988, AT&T indicated that it has undertaken approximately 200 commercial SI contracts and 10 federal SI contracts in the U.S. Examples of AT&T's projects include:

- Transportation Dept., U.S.      - Office Automation
- Chrysler Financial                - Open Systems Platform in SNA Environment
- Amtrak                                - Ticket Agent Automation
- American Airlines                - Travel Agent Automation
- Hyatt Hotels                         - Property Management/Central Reservation Systems

AT&T's most significant contract for 1989 was the federal government's FTS-2000 contract to provide switched voice, switched data, packet switching, video transmission, switched digital integrated and dedicated transmission, and other services. In its final form, AT&T won 60% of a three-year, \$450 million, revenue guarantee (U.S. Sprint won the other 40%). This is a level-of-service contract; thus, under this contract, the federal government will not lease additional circuits or purchase of any hardware or facilities to support FTS-2000.

Two of AT&T Istel's major projects are:

McVities (UK)                      - provision of manufacturing planning and control system

Wiggins Teape (UK)              - production monitoring system.

## Products and Services

### (i) Technologies

AT&T is one of the world's most capable providers of telecommunications facilities and services. In addition, due to its role in the telecommunications market, it has developed great expertise in the management of almost incredibly large projects - few companies would have either the economic strength or the management vision to undertake laying an underwater intercontinental telephone cable.

AT&T provides a wide variety of international network services, including network services to foreign governments and national organisations. In its traditional lines of business, AT&T has superior technical capability and provides services to virtually all vertical markets. The corporation has long been known as a leader in basic research.

AT&T has exceptionally strong capabilities in areas related to the design, development, and management of large telecommunications networks.

In 1990 NCR released the System 3000, Cooperation, and the Open Networking Environment which form the basis of NCR's approach to open systems and co-operative processing.

NCR specialises in industry-specific equipment for the financial services and retail sectors, including atms, teller workstations, retail terminals and scanners.

AT&T Istel is believed to be in the process of migrating its application software products to Unix. The company has considerable expertise in factory automation, and networking, particularly the provision of network services.

### (ii) Industry Knowledge

In its traditional business, AT&T is a major player in virtually every vertical industry sector. The systems integration activities to date have focused heavily on AT&T's strong functional capability in communications networks.

- AT&T Computer Systems has targeted the following functions and industries:
  - Network computing - making use of AT&T's major expertise in systems connectivity technologies
  - Business orchestration - i.e., workflow automation tools
  - Federal, state and local governments

- Telecommunications
- Lodging, transportation and retail.

All these targets show that AT&T is shifting its focus on communications as a necessary adjunct to the life of a viable business organisation.

NCR Corporation has traditionally focused its efforts in the finance and retail industries. Overall NCR's SI efforts are aimed primarily at the federal, state, and local governments, and at the following vertical markets:

- Retail
- Financial
- Manufacturing
- Health.

NCR currently markets its SI services primarily to industry-focused (i.e., vertical market) clients.

As an equipment manufacturer, NCR formerly marketed its own brand of equipment as the most desirable solution to a client's needs; NCR, however, now presents itself as an open systems solutions vendor, specialising in the integration of systems that operate in multivendor environments. Thus, in its SI pursuits, NCR has become a total service provider.

NCR selects its market targets using the following criteria:

- Value of project
- Strategic direction
- Account control
- NCR's expertise in required area(s)

AT&T Istel's major systems integration projects tend to lie in the manufacturing sector particularly in the automotive sector where AT&T Istel has designed and implemented many of the production management and shopfloor systems supporting its former parent's - the Rover Group - manufacturing activities. The company has also won a number of contracts of this type outside the Rover Group. Examples of such projects include:

- the provision of a fully integrated system for manufacturing, planning and control for McVities
- the provision of a production monitoring system for Wiggins Teape.

AT&T Istel's activities in the Finance, Travel, and Retail sectors centre around its network services offerings. In the Health sector, systems operations accounts for a major component of the company's revenues.

(iii) Key Application Products

AT&T Istel has a tendency to acquire application software product vendors in support of its activities rather than adopting the more fashionable approach of establishing partnerships.

Key products include:

Manufacturing Sector:

- Processmarc - production management for the process manufacturing sector
- Impcon - production management for the discrete manufacturing sector
- Tracker - shopfloor data collection
- Tardis - time and attendance recording
- Witness - simulation
- AIM-Supervisor - SCADA for the process manufacturing sector
- Storeman - tooling control system

Other

- Chorus financial software.

As part of AT&T, AT&T Istel has a policy of migrating all of its products which formerly ran under proprietary operating systems to run under Unix.

**Financial  
Information**

Exhibits D and E provide a five-year financial summary and breakdown of revenues by activity for AT&T. The revenues of AT&T Istel are included under "Other rentals and services" in Exhibit E.

Similarly exhibits G to I provide a five-year financial summary for NCR together with breakdowns of 1990 revenues by region and activity.

**Exhibit D****AT&T FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS)**

	1986	1987	1988	1989	1990
Revenues	34,213	33,773	35,218	36,149	37,285
Growth Rate (%)	-	(1)	4	3	3
Net Income	139	2,044	(1,669)	2,697	2,735
Growth Rate (%)	-	1,370	(182)	262	1

**Exhibit E****1990 AT&T REVENUES  
BREAKDOWN BY ACTIVITY**

PRODUCT/SERVICE	REVENUES (\$ MILLIONS)	PERCENT
Telecommunications Services	19,691	53
Sales of products & Systems	12,201	33
- Telecommunications network products	7,303	20
- Communications and computer products and systems	3,689	10
- Microelectronics products and special products	1,209	3
Rentals and Other Services	4,631	12
- Communications and computer products and systems rentals	2,096	6
- Installation; maintenance and other product-related services	1,522	4
- Other rentals and services	1,013	2
Financial Services and leasing	762	2
<b>TOTAL</b>	<b>37,285</b>	<b>100</b>

Exhibit F provides the key financial ratios for AT&T.

### Exhibit F

#### KEY FINANCIAL RATIOS

	1986	1987	1988	1989	1990
Revenues per employee (%000's)	108	111	116	128	136
Profit per employee (\$000's)			(10.0)	15.2	17.6
Return on sales (%)			(8.7)	11.9	12.9
Return on capital employed (%)				16.9	16.8

### Exhibit G

#### NCR FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS)

	1986	1987	1988	1989	1990
Revenues	4,882	5,641	5,990	5,956	6,285
Annual Growth Rate (%)	13	16	6	(1)	6
Profit before tax	623	766	787	739	650
Profit after tax	337	419	439	412	369
Annual Growth Rate (%)	7	24	5	(6)	(10)

### Exhibit H

#### 1990 NCR REVENUES (\$ MILLIONS) BREAKDOWN BY ACTIVITY

PRODUCT SERVICE	REVENUES	PERCENT
Industry Specific products		
Retail	623	10
Financial	973	16
Small computer systems/workstations	444	7
Mid-range computer systems	765	12
Large computer systems	264	4
Communication processors	113	2
Other	171	3
Media and business forms	522	8
Semiconductors and components	146	2
Services	2,264	36
<b>TOTAL</b>	<b>6,285</b>	<b>100</b>

## Exhibit I

**1990 NCR REVENUES (\$ MILLIONS)  
BREAKDOWN BY REGION**

REGION	REVENUES	PERCENT
United States	2,393	38
Europe	2,212	35
Pacific	1,341	21
Other	339	6
<b>TOTAL</b>	<b>6,285</b>	<b>100</b>

**Market  
Analysis**

Exhibits J to L provide INPUT's estimate of NCR's European software and services revenues broken down by industry, country and delivery mode.

Similarly exhibits M to O provide details of AT&T Istel's revenues broken down by industry, service type, and delivery mode.

## Exhibit J

**NCR WESTERN EUROPEAN SOFTWARE AND SERVICES REVENUES  
BREAKDOWN BY INDUSTRY SECTOR, 1990**

SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Banking & Finance	30	35
Distribution	20	25
Manufacturing	8	10
Services	8	10
Government	4	5
Other	12	15
<b>TOTAL</b>	<b>82</b>	<b>100</b>

\*INPUT estimate.

## Exhibit K

**NCR WESTERN EUROPEAN SOFTWARE & SERVICES REVENUES  
COUNTRY BREAKDOWN, 1990**

COUNTRY	REVENUES* (\$ MILLIONS)	PERCENT
France	14	17
Germany	14	17
UK	12	14
Italy	5	7
Scandinavia	20	25
Benelux	9	11
Other	8	9
<b>TOTAL</b>	<b>82</b>	<b>100</b>

\*INPUT estimate

## Exhibit L

**NCR WESTERN EUROPEAN SOFTWARE AND SERVICES REVENUES  
BREAKDOWN BY DELIVERY MODE, 1990**

DELIVERY MODE	REVENUES* (\$ MILLIONS)	PERCENT
Processing Services	13	16
Software Products	14	17
Professional Services	25	31
Turnkey Systems	30	36
<b>TOTAL</b>	<b>82</b>	<b>100</b>

\*INPUT estimate

## Exhibit M

**AT&T ISEL SOFTWARE & SERVICES REVENUES, 1990  
BREAKDOWN BY INDUSTRY SECTOR**

SECTOR	REVENUES (\$ MILLIONS)	PERCENT
Rover	88	35
Automotive	10	4
Manufacturing	20	8
Finance	50	20
Health	25	10
Travel	15	6
Retail	5	2
Other UK	27	11
International	10	4
<b>TOTAL</b>	<b>250</b>	<b>100</b>

Source: AT&amp;T Istel

## Exhibit N

**AT&T ISEL SOFTWARE AND SERVICES REVENUES, 1990  
BREAKDOWN BY SERVICE**

SERVICE	REVENUES (\$ MILLIONS)	PERCENT
Computer Applications Processing	78	31
Systems and Consulting	70	28
VADS	57	23
General Systems	45	18
<b>TOTAL</b>	<b>250</b>	<b>100</b>

Source: AT&amp;T Istel

## Exhibit O

**AT&T ISTEEL SOFTWARE & SERVICES REVENUES, 1990  
BREAKDOWN BY DELIVERY MODE**

DELIVERY MODE	REVENUES* (\$ MILLIONS)	PERCENT
Systems Operations	78	31
Network Services	57	23
Professional Services	55	22
Systems Integration	10	4
Software/Turnkey Systems	50	20
<b>TOTAL</b>	<b>250</b>	<b>100</b>

\*INPUT estimate

### Strategic Analysis

#### (a) Company Direction

AT&T's goals are to increase its global coverage and to become a key player in networked computing, particularly in transaction-intensive industries where computing and communications are highly interrelated.

The acquisition of NCR was crucial to provide AT&T with a significant established presence in the computer market. AT&T's own computer activities are believed to have been making a substantial loss, and it is probable that AT&T's computer business will be merged with NCR.

The acquisition of Istel provides AT&T with an established entry into network services in the UK and later, Europe. AT&T Istel Global Messaging Services Ltd has been created combining Istel's EDI service and AT&T's electronic mail and enhanced fax offerings.

AT&T's systems integration activities are likely to develop in two areas.

Firstly AT&T will be a major competitor, particularly in the U.S., in projects with a considerable telecommunications element whether for the commercial sector or the federal government/defence sectors.

Particularly, INPUT believes that AT&T will:

- Focus on opportunities that make the best use of its strength in long-distance network design, implementation, and management
- Place emphasis on alliances related to specific opportunities. As the major provider of long-distance telecommunications services, AT&T is a logical choice as an ally for other vendors to provide the telecommunications component of key contracts.
- Use SI as a means of pulling together and marketing its own services. AT&T will develop strategies that focus on providing services, such as customised telemarketing solutions, that require the combination of computers, custom software, and network services that AT&T already provides.

In addition, AT&T has identified the following selection criteria for projects that it will show an interest in:

- Networking/communications requirements
- Fortune 2000 companies.

Secondly AT&T will use NCR's expertise to target systems integration projects involving networked computers in the financial services and retail sectors.

NCR, in its role as a proprietary equipment and software vendor, has been selling solutions to business organisations for many years. NCR's Systems Integration and Support unit, however, has been in the commercial SI business for only three years; it has been active in the federal SI market for only one year. As a customer-oriented company offering total solutions and vertical-industry expertise to its customers, the shift to SI services is a natural response to a changing market.

NCR brings to its business time-tested expertise in its vertical markets. In addition, it has adopted the following strategy for promoting its new open systems/interconnectivity stance:

- Use of CASE/design methodology as a systems engineering discipline in application development
- Promotion and use of industry standards in the development of industry-specific software

- Promotion of cooperative processes in the distributed/multiuser processing environment
- Adopting UNIX and DOS environment standards using IBM microchannel work platforms
- Promoting the use of NCR corporate project management capabilities
- Promoting the use of network management products such as ONE and Network Manager.

AT&T Istel has ambitions to become one of the leading software and services vendors in Europe. To achieve this goal, the company is dependent upon making a number of large acquisitions in continental Europe.

The company is especially strong in network services and will continue to develop its capabilities in this area.

(i) Consulting

AT&T has a strong capability in business consulting when it comes to network development and management. This capability is definitely marketable in niche areas. It has traditionally used alliances to supplement this skill with general business consulting, but will need to significantly strengthen its own capabilities to compete in the general SI market.

AT&T Istel has in the past tried to market its consultancy skills in the manufacturing sector and in network consultancy. However both of these initiatives failed.

(ii) Geographic Coverage

AT&T's systems integration activities are confined primarily to the U.S., though the company will undoubtedly use NCR and AT&T Istel as vehicles to expand its coverage of the systems integration market.

While NCR generates 35% of its revenues in Europe, the company's penetration of the European software and services market and in particular the systems integration area is limited.

Despite ambitions to become one of the major software and services vendors throughout Europe, over 95% of AT&T Istel's revenues are still generated in the UK.

Much work remains to be done before AT&T and its subsidiaries become a major force in systems integration in Europe.

## (iii) Partnerships

AT&T Computer Systems is developing both long-term and *ad hoc* contracts (i.e. alliances) with other vendors to complement its capabilities. AT&T relies primarily on contract-by-contract agreements for professional services; its long-term agreements provide sources for various types of computer hardware and systems software. Exhibit P lists some of AT&T's long-term alliances and the purposes they serve.

## Exhibit P

AT&amp;T'S STRATEGIC ALLIANCES

Alliance With	Purpose
Informix	System Software
Intel	Computer hardware
Oracle	System Software
Pyramid	Computer hardware
Sybase	System Software
Tandem	Computer hardware
Microsoft	System software

NCR uses both long-term and contract-by contract agreements to augment its products and services offerings. The Systems Integration and Support organisation uses long-term or contract-by-contract agreements to make available specific hardware or software products or services that NCR does not produce, to better answer a specific client's requirements. In this way NCR can perform as a total system solutions vendor.

NCR declined to identify any of its strategic alliances.

## (b) Strengths and Weaknesses

Any competitive weaknesses that AT&T may have can be directly related to two significant factors:

- First, the traditional services that AT&T provides are subject to regulatory approval by the Federal Communications Commission (FCC). This gives competitors advance knowledge of service offerings and pricing, as well as the right to object to any provisions that they believe to be anticompetitive.

- Also, AT&T has to do battle with its own internal bureaucracy - a legacy of its monopolistic days. It takes great effort on AT&T's part to be responsive to changing opportunities and markets. This reduces AT&T's ability to consistently focus its efforts to achieve its strategic goals.

AT&T has been providing integrated systems to the federal SI market for over 20 years, and network integration to the commercial market for more than ten years. AT&T entered into the computer systems integration market approximately four years ago, with separate communications and computer systems integration organisations. AT&T has now distributed its computer systems integration efforts closer to its customers - through regionally deployed Customer Application Engineering Centres. These Centres are coordinated through a National Customer Application Engineering Centre in Somerset, New Jersey.

AT&T's most significant strengths are its capabilities and technical expertise in large-scale telecommunications. Few, if any, of its competitors can match AT&T in this area. AT&T has extensive resources to meet most needs relevant to the design, development, and management of telecommunications services; and it has a large nationwide customer base in the U.S. to market its SI services to. Also, AT&T has begun to form meaningful, long-term relationships with other manufacturers and services vendors that complement AT&T's capabilities and strengthen its competitive stance.

AT&T, however, has limited experience in designing, developing, implementing, and operating major applications software systems. The newly-increased number of significant alliances AT&T has entered into should help to fill out AT&T's capabilities and make it an ever more credible competitor in all areas of commercial and federal systems integration.

AT&T's recent acquisition of NCR suggests that AT&T should not be considered either a niche-market participant or even primarily a telecommunications services and facilities provider. Rather, it now appears that AT&T intends to compete fully in all aspects, including the SI segment of the information systems market.

With its economic strength, its depth of telecommunications expertise and growing breadth of capabilities augmented by its alliances, AT&T must be considered a major participant in the SI market. Following the company's acquisition of NCR, AT&T could become a dominant participant in the banking and retail SI markets and in other segments of the information services and products markets.

Its very size, however, gives AT&T a level of economic strength that is most advantageous.

NCR's strengths, summarised in Exhibit Q are its expertise in meeting the needs of the financial services and retail vertical industries, its emphasis on client relationships, its support for open systems, and the breadth of its capabilities supported by strategic alliances. Also, NCR has a large customer base in the financial services and retail industries.

#### Exhibit Q

INPUT'S EVALUATION OF NCR'S SI CAPABILITIES

Strengths	Weaknesses
<p>NCR's expertise in financial and retail organisations</p> <p>NCR is an open systems vendor</p> <p>NCR's broad array of capabilities gained through alliances</p> <p>NCR's core area expertise</p>	<p>NCR's unfamiliarity with other vertical markets</p>

One weakness that NCR may have is that customers may perceive a lack of expertise outside of the financial and retail vertical industries. A few well-chosen successes that clearly show NCR's mastery of the technologies involved above should quickly dispel any doubt about NCR's capabilities.

AT&T Istels strengths lie primarily in the company's computer-integrated manufacturing expertise gained through its association with the Rover Group, and its network services offerings.

AT&T Istel lacks any significant presence in Europe outside the UK, and the AT&T group as a whole lacks a significant systems integration presence in Europe.

#### (c) Conclusions

AT&T undoubtedly has the ambition to become a major vendor of both telecommunications and information services throughout the world, and is prepared to invest heavily to achieve this aim. For example, AT&T Istel is known to have an objective of being one of the top five computer services vendors in Europe by 1996, and believes that AT&T is prepared to fund the major acquisitions necessary to achieve this aim. Similarly AT&T showed its determination to become a major player in the information services market with its acquisition of NCR.

At present AT&T and its subsidiaries are not significant players in the systems integration market in Europe. Much of AT&T's recent effort in Europe has been devoted to developing the organisation's network services and telecommunications capability across Europe.

Apart from projects with a high electronic information content, it is unlikely that AT&T will become a significant player in the systems integration market over the next few years. However the company could significantly improve its position in network services and particular niches within the information services market.

#### **(d) Strategic Assessment - AT&T**

AT&T has for some time been pursuing a strategy based on the convergence of its immense strength in telecommunications and information systems. Attempts to do this organically and through joint ventures have failed and it is only with the recent acquisition of NCR that it has established a serious position in computer related markets. In Europe its acquisition of ISTEEL and subsequently inter alia DATAID have opened up a beachhead into the European market for computer based services.

AT&T have publicly stated ambitions to grow their European computer services based business to become amongst the top five vendors in the course of the decade. A very significant financial commitment to major acquisitions would be required to achieve this.

AT&T is likely to concentrate its resources on developing comprehensive global networking management services. This will include systems integration contracting for telecommunications infrastructure related projects where its depth of technical resources will make it a major competitor. It is unlikely to operate on a general scale in the wider market but will undoubtedly retain some significant niche presence in, for example, banking systems.



## COMPANY PROFILE

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### **AT&T ISEL LIMITED**

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Tel: 0527 64274  
Fax: 0527 62399

Chairman: John Leighfield  
Chief Executive: Chris Chiles  
Status: Subsidiary of AT&T  
Number of employees: 2,700  
Revenue (FYE 31-12-91) £173 million

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### **The Company**

Istel started life in 1979 as BL Systems Ltd. It was formed from the IS department of British Leyland creating an organisation dedicated to computing, communications and systems services. The company was wholly owned by British Leyland (and subsequently the Rover Group).

The company adopted the name Istel in 1984. In June 1987, a management-led employee buy-out from the Rover Group took Istel into the private sector. In November 1989 the company was acquired by AT&T, the largest telecommunications company in the U.S., and adopted the name AT&T Istel in March 1990. Today AT&T Istel employs over 2,700 staff in Britain, the U.S., Belgium and Germany.

AT&T Istel is one of the major information technology services companies in Europe and in 1991 its turnover exceed £173 million.

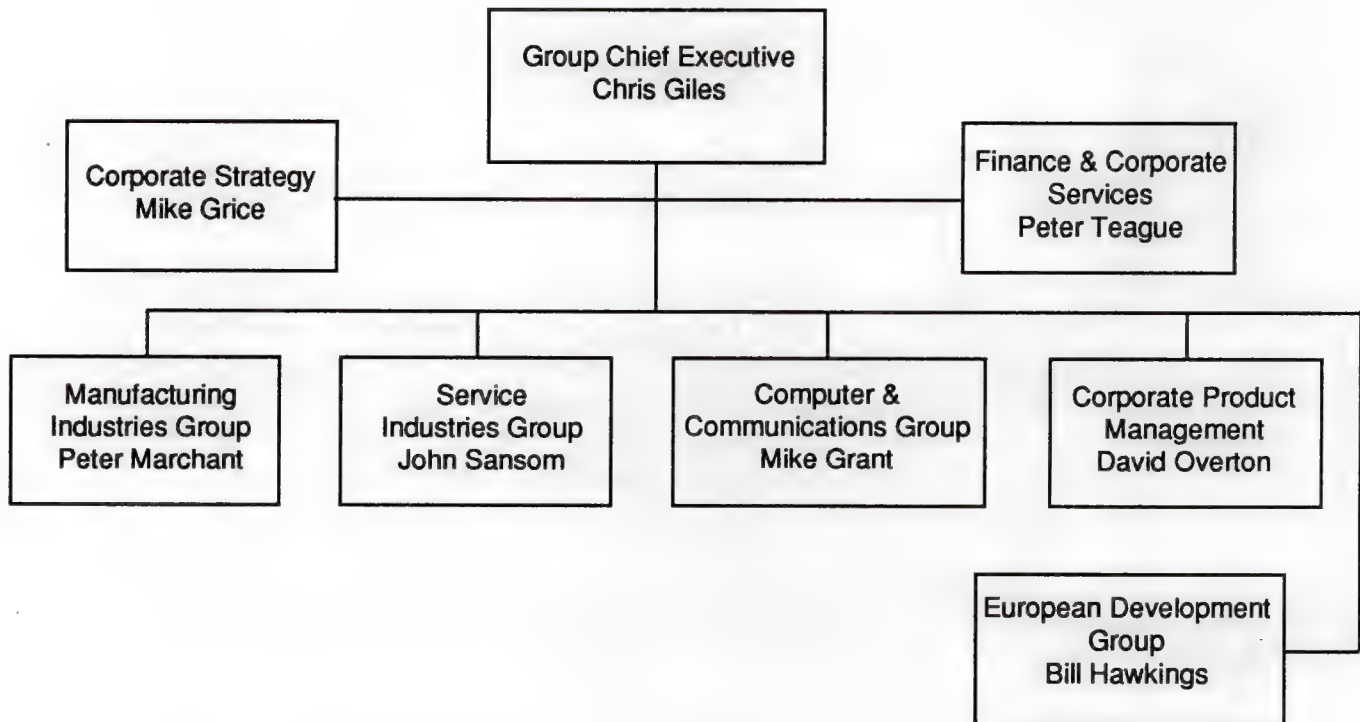
### **Organisational Structure**

The overall organisational structure of AT&T Istel is shown in Exhibit A, and the structures of the major divisions are indicated in Exhibits B to F.

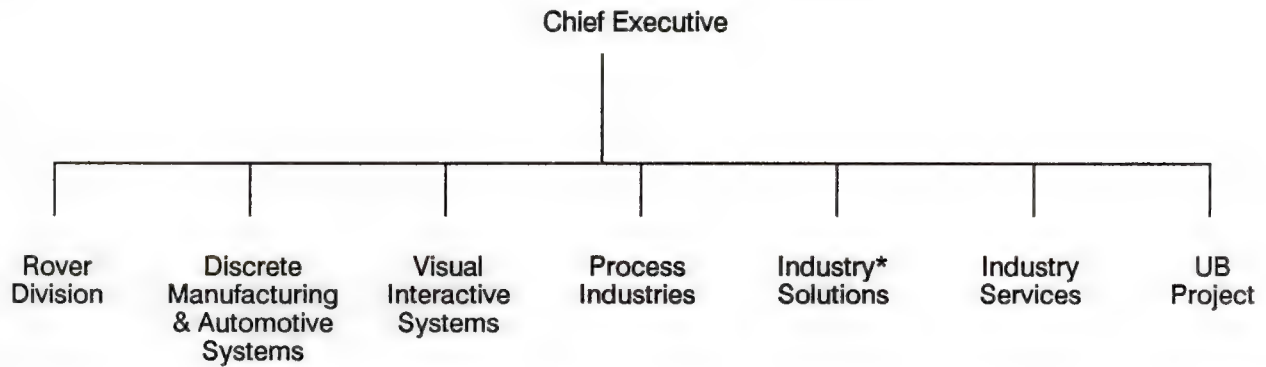
INPUT LIBRARY

## Exhibit A

## AT&amp;T ISTE ORGANISATIONAL STRUCTURE

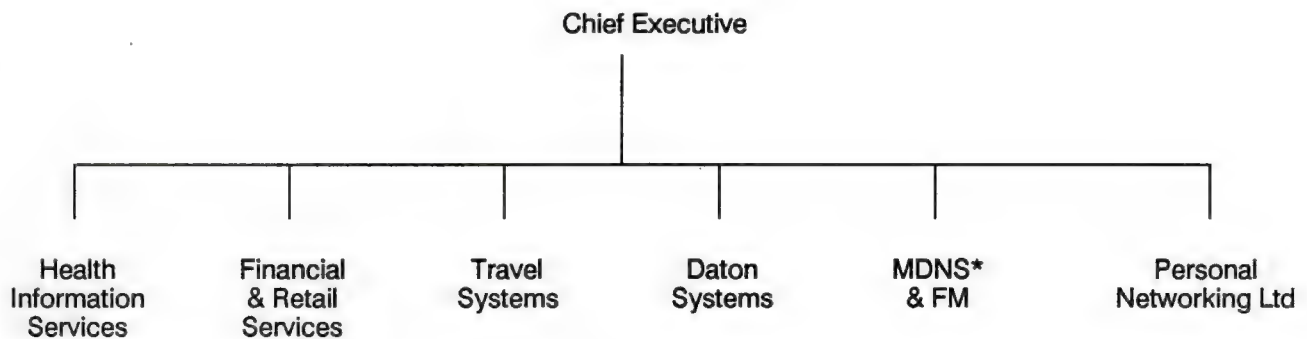


## Exhibit B

**MANUFACTURING INDUSTRIES GROUP**

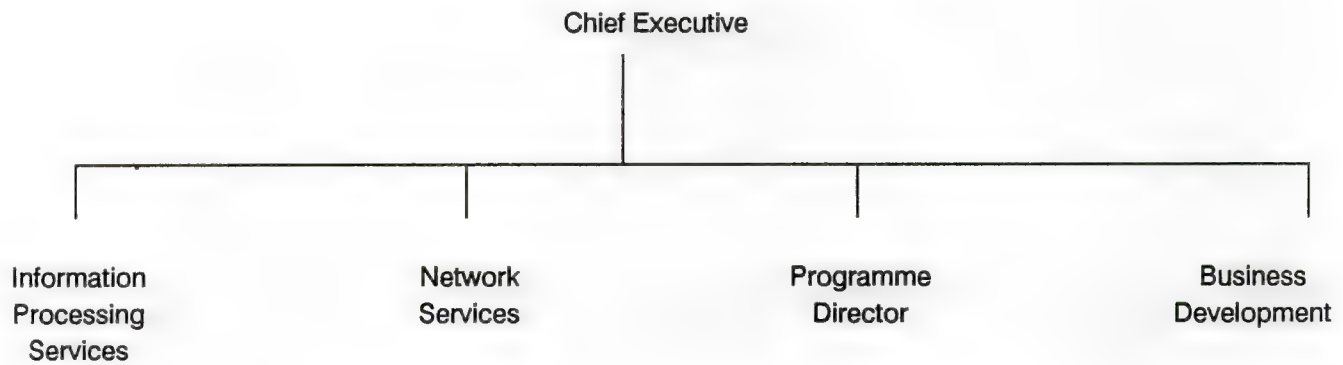
\* sells outsourcing services

## Exhibit C

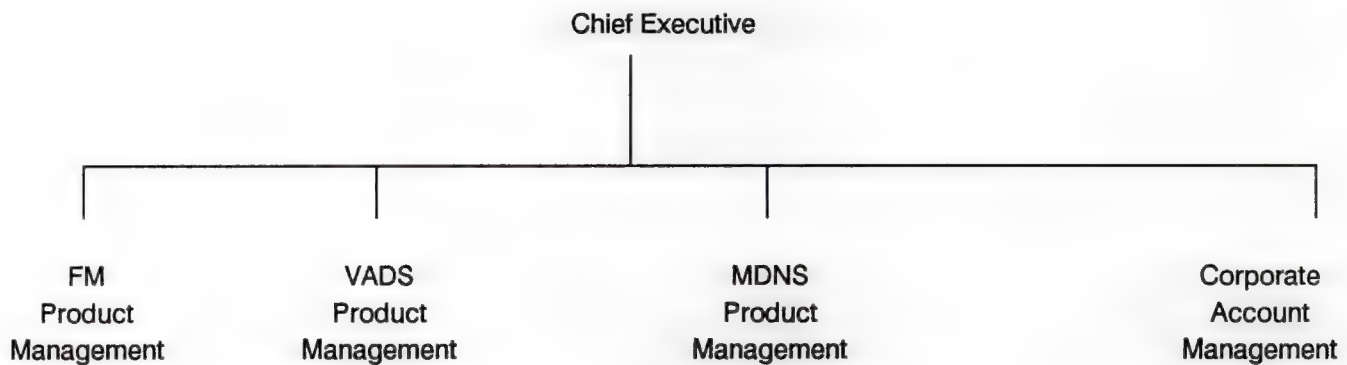
**SERVICE INDUSTRIES GROUP**

\* sells outsourcing services

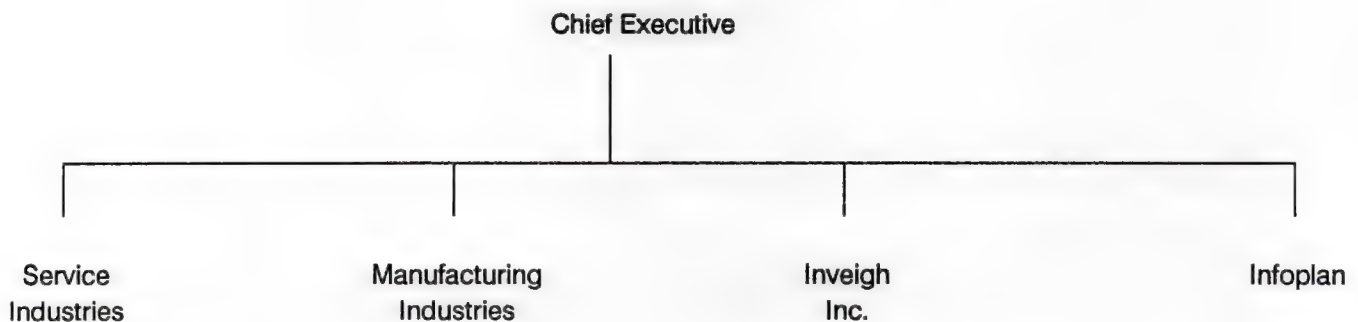
## Exhibit D

**COMPUTER & COMMUNICATIONS GROUP**

## Exhibit E

**CORPORATE PRODUCT MANAGEMENT**

## Exhibit F

**EUROPEAN DEVELOPMENT GROUP**

## Acquisition History

AT&T Istel plans to increase its revenue to £1 billion within five years and by the end of the century it expects to be in the top three European information technology (IT) services companies, which means growing to £1.5 billion.

One of the measures put in place to achieve this impressive growth was the establishment in 1991 of the European Development Group. Its task is to ensure that the company is positioned to achieve revenues from non-U.K. sources of £500 million by the end of 1995. The aim is to create a significant presence in continental Europe in the financial services, manufacturing and health care sectors.

Initially, the growth will be achieved through an acquisition-led strategy. The primary target countries will be Germany, for manufacturing systems, and France, for financial services. These two countries have been selected because they account for half the total IT software and services in continental Europe.

AT&T Istel has made several important acquisitions in the U.K. over the years, but in 1991 it made its first acquisition in continental Europe with the purchase of Infoplan in Germany.

Infoplan, based in Cologne, is a software house with a 1991 turnover of DM 43 million and employs some 185 people. The main areas of specialisation are computer-integrated manufacturing, production planning and control, facilities management and consultancy.

In March 1992, Infoplan was joined by another company, CAB-Computeranwerndungs-Beratungs. CAB is a software house specialising in providing applications programs, primarily based on the UNIX operating system. It also provides associated services, including bespoke developments and training to manufacturing industry. The UNIX connection suits Istel's AT&T parentage and complements other areas of AT&T Istel that also specialise in developing systems using this platform.

More recently a deal was agreed to buy French company Dataid, a major supplier of IT services with 1,500 employees and a turnover of £70 million. The company has an established presence in the French outsourcing market. Overall, Dataid specialises in professional services, facilities management and industrial, scientific and technical systems.

Other acquisitions in 1990 and 1991 include the following:

- Computer Systems Development (CSD) - a vendor of production management software products for the discrete manufacturing sector
- Daton Systems Ltd - a UNIX-based systems house
- WP Associates - a supplier of Oracle-based applications
- Chorus Software - a supplier of financial accounting software
- Belmin Systems of Bridgwater, Somerset, a software house specialising in providing purchasing systems for local and central government agencies.
- Qa Business Services, which has a three-and-a-half-year contract to run a major data centre for the West Midlands health authorities and the waiting list project for the NHS.

#### **Recent Major Projects**

AT&T Istel's major systems integration projects tend to lie in the manufacturing sector, particularly in the automotive sector where AT&T Istel has designed and implemented many of the production management and shop floor systems supporting its former parent's - the Rover Group's - manufacturing activities. The company has also won a number of contracts of this type outside the Rover Group. Examples of such projects include

- the provision of a fully integrated system for manufacturing, planning and control for McVities
- the provision of a production monitoring system for Wiggins Teape.

AT&T Istel estimates that it holds 55% of the available outsourcing market in the U.K. health sector. The company has major contracts with Trent RHA and West Midlands RHA as well as with a wide range of District Health Authorities.



## Products and Services

AT&T Istel's major offerings include the following:

- A wide and constantly growing range of value-added and data services.
- A pan-European managed network service, recently announced by AT&T, which will be supplied through AT&T Istel. The first European Network Management Centre has been built at Istel's headquarters in Redditch.
- Computer-integrated manufacturing throughout the U.K.
- The Infotrac network, which is one of the largest private data networks in Europe and carries some 3 million user sessions each month.
- Application development and project management.
- The Witness simulation system, which is designed to be used by non-computer staff and is the decision-support system used in many industries.
- Network services to the travel industry, which are used widely in the U.K., carrying over 50 % of the holidays booked electronically.
- AT&T Easylink Services, which brings together the messaging skills of AT&T, AT&T Istel and Western Union. The unit offers electronic data interchange, electronic mail and other enhanced messaging services, such as AT&T Enhanced Fax, on a global basis.
- Applications and communications links that enable banks and retailers to complete the entire circle of trading links, by allowing stores (from electronic point of sale), head office, suppliers and banks to exchange sales and financial data electronically.
- The management of computers and networks for users - systems operations. AT&T Istel's experience covers managing and maintaining voice and data networks and running facilities with IBM, DEC and ICL hardware. The customer base includes the automotive manufacture and health care sectors, household goods manufacturers and distributors, retailers, financial agencies and database providers.

The Communications and Data Centre, from which many of the company's services are provided, is one of the most advanced and sophisticated in Europe with more than £30 million worth of computer and communications equipment.

**Financial  
Information**

Exhibit G provides a five-year financial summary for AT&T Istel.

**Exhibit G**

YEAR	1987	1988	1989	1990	1991
Revenues	69.2	85.0	109	130	173
Annual Growth Rate (Percent)	16	23	28	19	33
Profit Before Tax	5.0	8.0	N/A	N/A	N/A
Annual Growth Rate	127	60	-	-	-
Revenues per employee (£000's)					64

Although AT&T Istel grew by 33% in 1991, much of this growth was achieved by acquisition and AT&T Istel was disappointed with the level of organic growth achieved in the U.K. in 1991. In particular, the company had a significant number of redundancies within the division targeting the discrete manufacturing sector.

Exhibits H to J provide breakdowns of the company's 1991 revenues by industry sector, product, and country.

**Exhibit H****1991 MARKET ANALYSIS BY INDUSTRY SECTOR (£ Millions)**

INDUSTRY SECTOR	REVENUES	PERCENT*
Rover Group	40	23
Manufacturing	30	17
Finance & Retail	30	17
Health	25	14
Travel	12	7
Other Automotive	5	3
Cross Industry	31	18
<b>TOTAL</b>	<b>173</b>	<b>100</b>

\*Because of rounding, may not add to 100

Source: AT&T Istel

## Exhibit I

**1991 MARKET ANALYSIS BY PRODUCT (£ Millions)**

PRODUCT	REVENUES	PERCENT
Computer Applications Processing	50	29
VADS	45	26
General Systems	40	23
Systems & Consultancy	38	22
<b>TOTAL</b>	<b>173</b>	<b>100</b>

Source: AT&amp;T Istel

## Exhibit J

**1991 REVENUE ANALYSIS BY GEOGRAPHY (£ Millions)**

COUNTRY	REVENUES*	PERCENT
Germany	15	9
U.K.		158 91
<b>TOTAL</b>	<b>173</b>	<b>100</b>

\*INPUT estimate

**Market  
Analysis**

Exhibits K and L provide estimates of the company's revenues broken down by delivery mode and INPUT's industry classification.

**Exhibit K****1991 MARKET ANALYSIS BY DELIVERY MODE (£ Millions)**

DELIVERY MODE	REVENUES	PERCENT
Processing Services	8	5
Turnkey Systems	18	10
Application Software Products	10	6
Professional Services	40	23
Network Services	45	26
Systems Operations	42	24
Systems Integration	5	3
Total Software & Service	168	97
Equipment & Other	5	3
<b>TOTAL EUROPEAN REVENUES</b>	<b>173</b>	<b>100</b>

## Exhibit L

**1991 MARKET ANALYSIS BY INDUSTRY (£ Millions)**

SECTOR	REVENUES	PERCENT
Discrete Manufacturing	64	37
Process Manufacturing	26	15
Banking & Finance	10	6
Insurance	14	8
Retail Distribution	7	4
Health care	28	16
Business Services	14	8
Local Government	2	1
Other Sectors	8	5
<b>TOTAL</b>	<b>173</b>	<b>100</b>

**Company  
Strategies****(a) Company Direction**

The company's mission is to become one of the top three European-based IT services companies in Europe. This requires a major and rapid expansion outside the U.K., particularly within continental Europe.

AT&T Istel has very aggressive growth targets. Overall, the company is targeting growth in software and services from \$275 million in 1991 to reach \$2.2 billion by 1996. By this time, AT&T Istel plans to be one of the top three software and services vendors in Europe alongside EDS and Cap Gemini Sogeti.

The growth will be achieved through a combination of acquisitions and the sale of AT&T Istel's products and services in the wider European market.

In terms of services, the company's emphasis is increasingly on network services and distributed open systems environments. The recent launch of AT&T Istel's pan-European managed network service is seen as providing a vital component of the infrastructure necessary to address these opportunities. In addition, the company is keen to promote its outsourcing offerings, where the emphasis will in future be placed on network management and managing companies' transitions to distributed open systems environments.

AT&T Istel is committed to providing differentiated services in a number of key markets, including manufacturing, health care, travel, finance and retail.

(i) Consulting

AT&T Istel has in the past tried to market its consultancy skills in the manufacturing sector and in network consultancy. However, both these initiatives faltered.

(ii) Partnerships

AT&T Istel has a tendency to acquire application software product vendors in support of its activities rather than adopting the more fashionable approach of establishing partnerships.

Key products include the following:

Manufacturing Sector

- Processmarc - production management for the process manufacturing sector
- Impcon - production management for the discrete manufacturing sector
- Tracker - shop floor data collection
- Tardis - time and attendance recording
- Witness - simulation
- AIM-Supervisor - SCADA for the process manufacturing sector
- Storeman - tooling control system.

Other

- Chorus financial software.

**(b) Strengths and Weaknesses**

The company's current strengths are summarised in Exhibit M.

**Exhibit M**

<b>STRENGTHS AT&amp;T ISTELE</b>	
<b>STRENGTHS</b>	
	Established pan-European network infrastructure
	Commitment to open systems
	CIM Expertise
	Financial resources of AT&T
	Established outsourcing vendor

AT&T Istel has a major strength in networking and expects to become increasingly involved in network management utilising its fast-developing pan-European networking capability.

AT&T Istel is committed to open systems. As part of AT&T, the company has a policy of migrating all of its products which formerly ran under proprietary operating systems to UNIX.

Another of the company's strengths is its computer-integrated manufacturing expertise gained through its association with the Rover Group.

To support its acquisition strategy, AT&T Istel claims to have the necessary financial backing from its parent to achieve its goals, and evidence of this is seen in the recent acquisition of Dataid.

AT&T Istel at year end 1991 had approximately 30 outsourcing contracts with a total value of \$80 million per annum, a quarter of the company's total revenues. The company has a number of major contracts and has a strong presence in the outsourcing market, particularly in the health sector, where it estimates that it holds 55% of the available market.

**(c) Conclusions**

Overall, the main strands in the company's development towards its goals are as follows:

- A move towards pan-European coverage by acquisition
- Continued development of the European network, seen as an essential part of the infrastructure required for wide-area distributed systems, particularly when targeting multinational corporations
- Increased targeting, possibly in conjunction with NCR in Europe, of the financial and retail sectors, and of the manufacturing sector in Germany
- A major marketing campaign to increase prospect awareness of AT&T Istel, followed by greater emphasis on account management and the long-term targeting of specific major organisations
- Building up of AT&T Istel's open systems development capability and application portfolio to provide the building blocks for a drive towards information systems management.

**(d) Strategic Assessment**

AT&T Istel has a strategy of increasing its geographical coverage, which has significantly expanded its range of products and services through the acquisition of companies in the U.K. With the emphasis now on growth in Europe, one of the challenges for the company is to mirror its U.K. success in the wider European market. The company hopes to increase its revenues to £1 billion by 1996, and obviously this level of growth can only be achieved by an aggressive acquisition policy. Perhaps the scale of the acquisition programme needs to accelerate to meet the company objectives.

In terms of future direction, AT&T Istel is likely to endeavour to increase its outsourcing market penetration in its other target sectors, particularly the financial and retail sectors. Indeed, creating some synergy with NCR could increase AT&T Istel's presence in these sectors.

## COMPANY PROFILE

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### AXONE

Immeuble Central IV  
1 avenue Montaigne  
93167 Noisy-Le-Grand Cedex  
France  
Tel: 33 1 49 31 67 00  
Fax: 33 1 45 92 03 00

President: Andre Felix  
MD: Gerard Jousset  
Status: Private subsidiary  
Number of Employees: 320  
Revenue (FYE 31-12-91): FF 323 million

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### The Company

Axone was founded as a joint venture, between IBM, Sema Groupe and Paribus, in 1987. It operates only in France and has three main business areas:

- Value added network services including electronic data interchange (EDI)
- Systems operations (facilities management)
- Disaster recovery services.

### Exhibit A

#### SHAREHOLDERS

SHAREHOLDER	PERCENT OWNED
IBM France	49.9
Sema Groupe	25
Paribas	25

Axone employs 300 staff. Most staff possess expertise in the IBM operating systems environment, but there also exists some Digital, Bull, and Unisys operating expertise.

Axone is currently endeavouring to build upon its multivendor capabilities. Currently two-thirds of the company's mainframe capability is built around IBM equipment.

**Key Products and Services**

Axone provides three main categories of service:

- Network services
- Systems operations (facilities management)
- Disaster recovery services.

Network services offerings consist of:

- Cross-industry service lines targeting the requirements for inter-organisational communications:
  - AXTIERS is a videotex based service, providing software tools and hardware, videotex message and use of the AXONE network to allow user to tailor a Videotex system to their own internal organisational requirements including interrogation of in-house or third-party database in videotex mode
  - SCREENMAIL is the IBM electronic messaging service available internationally on the IBM IN network, to which the AXONE network services are linked. SCREENMAIL uses the classical mailbox principal and can handle various communications including X.400.
  - IE - Information Exchange - is another IBM service line which AXONE offers to provide EDI capability. Also functioning on the mailbox principle, IE can handle a number of EDI standards including EDIFACT, X12 and UNIDI and supports IBM equipment ranging from PCs up to large 370 architecture mainframes;
- Vertical industry service lines aiming principally at a limited number of industry sectors:
  - AXPLAN adopts the principles of EDI to the exchange of technical documentation and plans across a variety of communication systems and hardware platforms. Its main target industries are: Mechanical and Aeronautical engineering, the Housing and Civil Engineering construction industries,
  - AXCARTES services the card processing application area and provides facilities for Banks, Retail and other distribution companies who wish to have either front-and/or back-office work carried out for them by an independent service provider.

The company claims to be handling 70,000 users across over 150 user networks. One of its major contracts is to handle the IBM France network and its users.

Systems Operations (marketed by AXONE as Facilities Management) forms the largest component of the company's revenues. AXONE's offerings cover different levels of service:

- Transition management
- Network operations management
- Remote site operations management via the network
- Application operation and maintenance
- Complete facilities management for the enterprise.

Axone has six data centres, the largest of which is based in Paris, providing total processing power of 320 MIPS.

Disaster Recovery Services are also offered at a number of different levels and include:

- Services to allow users to formulate and maintain a Disaster Contingency Plan, leading on to the possibility of them adopting one or other of the following service lines
- A service based on an Activity Restart Plan (effectively a 'warm' restart procedure with a 'cold' restart - salle blanche - facility to back it up)
- A service based on an Uninterrupted Operations Plan (effectively a 'hot' restart offering immediate or almost immediate cut-over to an AXONE supported configuration in the event of a disaster)

Besides IBM, itself, AXONE has major customers in the Transportation, Banking, Automotive and Insurance sectors.

## Financial Information

### Exhibit B

#### THREE-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)

YEAR	1988	1989	1990	1991
Revenue	64	135	190	323
Annual Growth Rate (%)	-	111	41	70
Profit after Taxes	-	-	2.8	5.5

**Market  
Information**

All 1991 revenues were generated within France.

**Exhibit C**

**1991 MARKET ANALYSIS BY AXONE REPORTED BUSINESS AREA (FF  
MILLIONS)**

BUSINESS AREA	REVENUE	PERCENT
Systems operations	178	55
Disaster recovery services	60	19
Value added network services	85	26
<b>TOTAL</b>	<b>323</b>	<b>100</b>

Source: INPUT estimate

**Exhibit D**

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
(FF MILLIONS)**

DELIVERY MODE	REVENUE	PERCENT
Processing Services	60	19
Network Services	85	26
Systems Operations	178	55
<b>TOTAL</b>	<b>190</b>	<b>100</b>

Source: INPUT

**Company  
Direction**

The company's growth in 1991 was achieved largely through its systems operations and network services activities.

Axone currently offers users two methods of subcontracting application processing and is now introducing a third.

Firstly Axone offers processing services providing users with access to MVS-based software products such as Sema Group's CardPac and SAP's R/2, which many medium-sized organisations could not afford to run in-house.

Secondly, Axone develops value-added network services for closed user groups. Axone has a policy that the organisations within these user groups must represent 25% or more of the GNP within their sector.

One example is the system Axone has developed for the Port of Marseilles which caters for the port's customers and road haulage needs.

Thirdly, IBM is now introducing a form of application management service applicable to medium-sized companies with mid-range systems. Axone perceives that medium-sized companies are less concerned about the personnel aspects of outsourcing and, as traditional users of packages, are used to subcontracting. Accordingly Axone is introducing a packaged service which offers clients a bundled service for application management. The service consists of:

- The appropriate application software product
- Any necessary systems software
- Hardware
- Maintenance
- System operation by Axone.



## COMPANY PROFILE

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### **BORLAND INTERNATIONAL INC.,**

1800 Green Hills Road  
P.O. Box 660001  
Scotts Valley, CA 95067-0001  
United States  
Tel.: 1-408-438-8400  
Fax: 1-408-438-8696

President: Philippe Kahn  
Status: Public  
Number of Employees: 2,100 worldwide  
Revenue (FYE 31-3-92) \$482.5 Million  
European Revenue \$200 Million

European Headquarters  
Borland Europe SARL  
2 Rue Maurice Hartman  
92130 Issy Les Moulineaux  
France  
Tel.: 33 1 46 29 36 40  
Fax: 33 1 41 2311 90

**INPUT LIBRARY**

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### **The Company**

Borland International Inc., was founded in 1983 in the U.S. by Philippe Kahn. Headquartered in Scotts Valley, California, Borland is a leading developer and supplier of business applications software and programming languages.

In 1986, the company went public on London's Unlisted Securities market and established a European headquarters in Paris. The initial public offering on the U.S. NASDAQ exchange came in December 1989.

With its acquisition of Ashton-Tate Corporation in October 1991, Borland is now one of the industry's largest personal computer software companies and supplier of database software. Currently there are Borland operations throughout the U.S., Europe, Asia, the Pacific Rim and Canada, and distributors carrying Borland products in Mexico, Central and South America, Eastern Europe, the Middle East and Africa.

Borland's product line includes the Paradox, dBASE and InterBase database products, the Quattro Pro spreadsheet, the Sidekick personal organiser, and leading programming products such as ObjectVision, Borland C++ and Turbo Pascal. These products have been widely acclaimed for superior performance and value, and have won impressive market shares in a relatively short period of time.

Borland's sales for fiscal 1992 (ended March 31) were in excess of \$482 million. The fiscal year earnings reflect the completion of the acquisition of Ashton-Tate Corporation and were reported on a pooling-of-interests basis. Borland employs over 2,100 people worldwide.

**Organisational  
Structure**

Borland's organisation is unusual in that product development is kept separate from product management and marketing. All the development groups report directly to Philippe Kahn, while the product management organisation are divided into business units.

Borland is organised into four strategic divisions:

- Applications
- Languages
- Paradox
- InterBase

Borland International's key executives are listed in Exhibit A.

**Exhibit A****KEY EXECUTIVES**

Philippe Kahn	Chairman, President and CEO
Spencer Leyton	Business Development Senior Vice President
Alan Henricks	Finance and Operations Senior Vice President
Richard Schwartz	Technology Senior Vice President

**Acquisition History:**

In September 1987, Borland acquired Ansa Software, developer of the Paradox relational database management program.

In October 1991, Borland acquired the Ashton-Tate Corporation and its large installed base of dBase users.

**Key Products and Services**

Borland is organised into four product divisions:

- Applications
- Languages
- Paradox
- InterBase

**Applications:**

Borland's applications offerings include Quattro Pro, Borland's best-of-breed spreadsheet, and the Sidekick personal organiser range. Quattro Pro is seen as a rival to Lotus' 1-2-3 spreadsheet.

Quattro Pro 3.0 was released in 1990 and quickly began gaining market share. The new program was widely hailed for its display, powerful capabilities, extensive database and network support, and exceptional performance on less powerful computers. In February 1992, Borland released Quattro Pro 4.0. The new version combines powerful push-button power with advanced analytical tools so users can evaluate complex spreadsheet relationships more easily. Speed-bar controls provide immediate access to commonly used functions, macros and commands. A Windows version of Quattro Pro was launched in September 1992.

The Sidekick personal organiser was launched in 1984 and Sidekick Plus in 1988, as companies increasingly moved to desktop management software for time and task management. Borland also offers Sidekick PM, its presentation management version. An updated version of the product - Sidekick 2.0 was designed in 1992 to interface with both electronic and paper-based organisations.

**Languages:**

dBASE, Borland's industry standard relational database management system, as well as Borland's highly successful development tools including Turbo Pascal and Turbo Pascal for Windows, the Borland C++ family of products and ObjectVision for Windows, comprise the Languages Division.

In March 1992, Borland released dBASE IV version 1.5 for DOS, a powerful new version of its widely used database management system. The new version features mouse support, faster QBE (query-by-example) performance, increased work areas and an open architecture. The new version is Borland's first step in its commitment to the dBASE community. Borland will continue to enhance dBASE with new versions and new capabilities.

In 1988, Borland targeted professional programmers with Turbo Pascal Professional, Turbo C Professional and Turbo Assembler and Debugger. Today, Borland offers a variety of new-generation programming languages for professional developers, including Turbo C++ 3.1, Borland C++ 3.1, Borland C++ with Applications Frameworks 3.1 and Turbo Pascal 6.0. Borland also provides versions of these products specifically designed for the Microsoft Windows environment.

In 1991, Borland introduced ObjectVision, an object-oriented visual programming tool that allows nontechnical users to easily create custom Windows applications without writing a line of code. In June 1992, Borland released ObjectVision 2.0 for OS/2 2.0.

#### **Paradox:**

The Paradox division offers Paradox, a database system acquired with Ansa software in 1987. In just four years after the acquisition, Paradox became Borland's biggest seller and captured 20% of the database market.

Today, Paradox 4.0 is available as a standard package, and network versions are also available.

Paradox SQL Link is a comparative product that provides users easy access to corporate data stored on a wide variety of computer equipment. The latest version, Paradox SQL Link 1.1, provides additional connection to SYBASE SQL Server, the relational database management system from Sybase Inc.

Borland also offers Paradox Engine, a programming tool that enable developers to integrate sophisticated database file access to custom software applications. The latest version, Paradox Engine 2.0, was released in March 1991.

**Interbase:**

The InterBase division is focused on developing and marketing Borland's InterBase Server, which it acquired with Ashton-Tate.

The InterBase Server is a relational database server that runs across multivendor networks in UNIX and VAX/VMS environments. InterBase is built on a multigenerational architecture that provides support for managing large amounts of complex data such as text, image and sound through BLOBs. InterBase also offers capabilities including true peer-to-peer architecture, highly efficient event alerters and "smart" automatic, two-phase commit and rollback.

**Financial  
Information****Exhibit B****BORLAND INTERNATIONAL CONSOLIDATED REVENUES  
FIVE-YEAR FINANCIAL SUMMARY (FYE 31-3)**

	1988	1989	1990	1991	1992
Revenues	348.9	397.8	378.6	457.3	482.5
Annual Growth Rate (%)	-	14	(5)	(21)	6
Profit after Tax	80.6	66.3	(16.7)	17.9	(124.5)
Annual Growth Rate (%)	-	(18)	(125)	207	(795)
Profit after Tax	44.6	41.3	(16.6)	4.8	(110.4)
Annual Growth Rate (%)	-	(7)	(140)	129	(2,400)

Note: The net loss reported in 1992 reflects restructuring and pooling costs of the acquisition and integration of Ashton-Tate with Borland.

Following the announcement of the merger in the quarter ended September 30th, 1991, revenues from sales of dBASE, Framework, MultiMate and other Ashton-Tate products decreased significantly from levels of the preceding quarters. The company believes that this decrease was due in part to uncertainty in the marketplace regarding the company's plans for the future of these products. Borland has announced that it will continue to support and develop enhanced versions of the dBASE product family.

## Market Analysis

### Exhibit C

#### MARKET ANALYSIS BY GEOGRAPHIC REGION (\$ MILLIONS) 1992, 1991 AND 1990

	1992		1991		1990	
Geographic Region	Revenues	Percent	Revenues	Percent	Revenues	Percent
U.S.	246.1	51	228.6	50	189.3	50
Non-U.S.	236.4	49	228.6	50	189.3	50
<b>TOTAL</b>	<b>482.5</b>	<b>100</b>	<b>457.3</b>	<b>100</b>	<b>378.6</b>	<b>100</b>

Source: Borland

INPUT estimates that Borland International's European revenues reached \$200 million in 1991, as shown in Exhibit D.

Exhibit D

**1991 MARKET ANALYSIS BY COUNTRY MARKET  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUE	PERCENT
France	30	15
Germany	60	30
U.K.	40	20
Italy	20	20
Netherlands	9	4
Belgium/Lux.	5	3
Spain	9	4
Switzerland	8	4
Austria	4	2
Sweden	5	3
Denmark	3	2
Norway	2	1
Finland	2	1
Other Europe	3	2
<b>TOTAL</b>	<b>200</b>	<b>100</b>

## Exhibit E

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUE	PERCENT
Discrete Manufacturing	40	20
Process Manufacturing	20	10
Transportation	5	2
Utilities	5	2
Telecommunications	5	2
Retail Distribution	10	5
Wholesale Distribution	5	2
Banking and Finance	40	20
Insurance	15	8
Health Care	10	5
Education	5	2
Local Government	15	8
National Government	15	8
Business Services	10	5
<b>TOTAL</b>	<b>200</b>	<b>100</b>

## Exhibit F

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)****EUROPEAN SOFTWARE AND SERVICES**

DELIVERY MODE	REVENUE	PERCENT
Systems Software Products	200	100
<b>TOTAL</b>	<b>200</b>	<b>100</b>

**Company  
Strategies****(a) Company Direction**

Borland International's philosophy is a commitment to 'software craftsmanship', to building best-of-breed products in every category and to being tuned to the needs of customers.

A key factor in achieving these goals has been Borland's early commitment to object-oriented programming. Borland was one of the first vendors to see the importance of this technology, now regarded as central to future advancements.

Borland now sees its future in what it calls on-line complex processing or OLCP, which is the ability to access complex data and to be able to interact with the database for long durations without degrading the on-line update capabilities of the system. Borland plans to extend the power of the desktop environment in a number of ways. These include:

- Providing spreadsheet and database applications that address OLCP
- Collaborative workgroup solutions
- PC development tools that tie end user and mission-critical applications together

Borland is committed to research and development, believing that its clients are looking for products with clear technology direction, not just a few features added to the next product release.

The company believes that it is necessary to continue to invest in research and development efforts to remain competitive and expects such spending to increase in the next few years.

**Partnerships:**

In 1991 and 1992, Borland formed a number of strategic relationships with vendors, examples of which are discussed below:

Borland formed its first strategic relationship with IBM in May 1991 to develop specific object-oriented programming languages and development tools for OS/2 2.0. The first product will be Borland C++ for OS/2 2.0.

In June 1991, Borland and IBM extended their business relationship by forming a new agreement under which Borland will develop the next generation of ObjectVision for OS/2 2.0.

Also in 1991, Borland launched its SQL Partners Programme. The new programme aims to strengthen commitment to the market by providing joint sales and marketing opportunities between Borland and partners that develop software applications using Borland's Paradox and SQL Link database products.

In February 1992, Borland, together with Apple Computer, Lotus Development and Novell, entered into an agreement to jointly develop and support the vendor-independent messaging interface (VIM).

In July 1992, Borland entered into a multiyear site licence agreement with Price Waterhouse to supply its desktop software products to over 25,000 PCs.

Borland's most recent collaboration is with IBM, Novell and WordPerfect to develop new database connectivity solutions. The four vendors are calling this new technology IDAPI (integrated database application programming interface).

**(b) Strengths and Weaknesses**

Borland's strengths are summarised as follows:

- Strong technical innovation and expertise
- Strong set of products
- Large installed base
- Strong customer orientation
- Wide geographical coverage and strong distributor network

Borland has a strong reputation as a company committed to development and enhancement of software for the PC environment.

Borland frequently uses the phrase 'software craftsmanship', a watchword of founder Philippe Kahn, which succinctly states the company's product philosophy. It is no coincidence that Borland's first product, Turbo Pascal - as well as many successful subsequent offerings - focuses on tools for building efficient and elegant software applications.

Borland's language products, which other software developers use to write programs, dominate their niche. The successful Quattro Pro Spreadsheet program has proved a significant competitor to both Lotus 1-2-3 and Microsoft Excel.

Borland's next generation of products to be released in 1993 are expected to be just as innovative as its existing offerings.

Borland has a strong product line, which has enabled the company to become a leading desktop software developer. Turbo Pascal was Borland's first product and today is the de facto Pascal programming standard worldwide.

Borland's real growth has been in the spreadsheet market. Quattro, launched in 1987, and Quattro Pro, introduced in 1989, are direct competitors to Lotus 1-2-3 and have taken a hefty chunk of the spreadsheet market.

Borland has a large installed customer base gained through the company's aggressive pricing strategy. When Quattro Pro was launched, Borland offered the package at \$100 to users of Lotus 1-2-3, increasing sales to approximately 50,000 a month, thus increasing its customer base.

Also, Borland's acquisition of Ashton-Tate and its established database product dBase has doubled the company's revenues and increased its share of the PC database market-place.

Another of Borland's strengths is its strong focus on customer needs, to the extent that it cites buying Ashton-Tate because Paradox users wanted more interoperability with Ashton-Tate's dBase.

Although founded in the U.S. less than 10 years ago, Borland has built a strong presence outside of the U.S. In Europe, Borland has subsidiaries in Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom. Borland also sells its products through distributors in all countries, including countries where it has a subsidiary.

The main challenges for Borland will be to successfully integrate Ashton-Tate's products into its own product line and to release its series of new products, which are already overdue, as early as possible in 1993.

Borland is relying on its new product line, which includes databases and a financial spreadsheet that works with Microsoft's Windows software program, to bolster the lacklustre financial results of recent months.

The acquisition of Ashton-Tate has meant that whilst Borland has doubled in size it raises the suggestion that such rapid growth might prove difficult to manage and control.

### **Conclusions:**

Borland prides itself on a flat non-bureaucratic structure, which is made possible in part by heavy use of electronic mail to facilitate communication across traditional lines of authority.

Borland was masterminded and continues to be led by Philippe Kahn, who inspires a great deal of loyalty amongst his management team and staff. His strong commitment to building quality software has placed him amongst a small group of executives in the software industry who have an intuitive understanding of computer software, a gut sense of what customers will want and the technical knowledge to carry it out.

Borland has also proved adept at making acquisitions and absorbing technologies developed elsewhere. Its most recent acquisition, Ashton-Tate, has improved its position in the database market and brought with it a number of quality products.

However, the acquisition has also brought some costly surprises. Borland took a \$103 million restructuring charge - considerably more than the \$50 million initially anticipated to cover the cost of absorption and of shutting down its Torrance Headquarters.

Borland now faces a number of challenges: the successful integration of Ashton-Tate, and the release of its much talked-about new generation of products (of which early reviews were favourable), which are already months late and which are seen as an indication of where the company is going.

Borland may also face increasing competition from Microsoft and Computer Associates, which during the first half of calendar 1992, announced that they would acquire Fox Software, Inc. and Nantucket Software, respectively. Both Fox and Nantucket produce database software products that compete directly with dBASE. The effects of these acquisitions is not yet known. Sales of the company's dBASE and Paradox products may be adversely affected by uncertainty in the market. In addition, because both Microsoft and Computer Associates have substantially greater financial, management, marketing and technical resources than Borland, it may experience far greater competition, including, but not limited to, price competition.



## COMPANY PROFILE

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### **BSO/ORIGIN**

Kon. Wilhelminalaan 3  
P.O.Box 8348  
3503 RH Utrecht  
The Netherlands  
Tel: 31 30 911 911  
Fax: 31 30 949 010

President: Eckart J. Wintzen  
Status: Private  
Number of Employees: 3,636  
Revenue (FYE 31-12-91): DFL 541.8 million

**INPUT LIBRARY**

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### **The Company**

BSO/ORIGIN was originally a joint venture between BSO/Beheer bv and N.V. Philips Gloeilampenfabrieken (Philips). Philips contributed its international systems development department PASS, while BSO contributed its international operations. The joint venture forms part of BSO's strategy to penetrate the international market.

Agreement was reached with Philips on the transfer of 50% of the shares in ORIGIN Technology in Business bv to BSO/Beheer bv in exchange for shares in BSO. For this purpose, BSO/Beheer bv increased its share capital by 8.33% by means of a share issue to Philips shareholding on April 1, 1991. Depending on 1991 and 1992 sales, further share issues will be effected, increasing the Philips shareholding to a substantial minority participation.

Transferring full responsibility of ORIGIN to BSO has made it easier for the company to re-organise its activities internationally in response to market demands.

### **Organisational Structure**

BSO/ORIGIN is a strongly decentralised organisation which operates in small and highly autonomous units. Apart from their commercial tasks, these operating companies are left to carry out their own policy within the framework of a number of quality standards drawn up centrally. The companies are only 'dependent' on the holding company for funding.

BSO/ORIGIN companies' activities have been categorised worldwide on the basis of two criteria: geographical (by country and, in some cases, subdivided into a number of specific regions within a country) and by the nature of services offered.

## Exhibit A

**1991 EMPLOYEE ANALYSIS BY BUSINESS AREA (31-12-1991)**

BUSINESS AREA	NUMBER OF EMPLOYEES
Information Systems	2,640
Automation Technology	521
Other	475
<b>TOTAL</b>	<b>3,636</b>

The number of employees at 31/12/91 was 3,636, an increase of 115. This was due mainly to the addition of the operating companies in Brazil, Italy, Taiwan and the U.S.

## Exhibit B

**1991 EMPLOYEE ANALYSIS BY JOB CATEGORY**

JOB CATEGORY	NUMBER OF EMPLOYEES
Trainee	84
Programmer	351
(System) Analyst/Programmer	595
System Analyst/Technical Designer/ System Programmer	608
System Designer/Project Manager/ Information Analyst	474
Senior Specialist/Senior System Designer/Project Manager/ Information Analyst	359
Project Manager/ (Technical) Consultant	204
Senior Consultant/Manager	112
Other	119
<b>TOTAL</b>	<b>2,906</b>

## Recent Acquisitions

In March 1991, ORIGIN acquired 100% of all outstanding shares in ComTech Systems Inc. The company provides services in the field of management information systems to large American enterprises. ComTech Systems employed 150 staff, and revenues for 1990 were \$12 million. The acquisition was paid for in cash.

In October 1991, BSO/ORIGIN acquired a 20% share in the German consultancy MCP AG, and a further 20% in January 1992.

## Key Products and Services

The BSO/ORIGIN operating companies offer specialised services to their respective markets. The companies are as follows:

- Automation Systems companies specialise exclusively in technological and techno-scientific automation problems, including real-time systems and data communication applications.
- Information Systems companies specialise in administration and financial automation.
- Management Support companies provide specialist services in the field of management information systems.
- Advises companies advise the management of companies and government departments on a range of organisational matters directly or indirectly related to the introduction of information technology.

ORIGIN Technology collaborates with the local companies in the various countries on cross-border projects, to which it also supplies worldwide support in specialist areas and for specific products. It also acts as account manager for a number of multinational clients.

The ORIGIN companies targeted at the Dutch markets mainly operate in the field of applications facilities management, where the service supplier is responsible and accountable for an organisation's operational automation tasks.

- Aerospace & Systems carries out defence and space projects on the domestic and international markets.

Hyperion-W.W & Associates, which operates globally, supplies high-volume transaction processing software, especially for airline booking systems, the banking industry and travel agencies.

- Artificial Intelligence specialises in the use of knowledge-based technology in large automated systems, either stand-alone expert systems or knowledge-based systems forming part of larger systems.
- Language Technology specialises in the use of knowledge-based technology for specific applications.
- Instruction Technology specialises in the use of automated systems for learning and training.

CAT Benelux is mainly active in the field of media applications.

- Business Communications undertakes (audio-visual) communications projects directly or indirectly linked to the introduction of new techniques or technologies.
- Quality Innovation renders a variety of services in the field of quality management and control. This autonomous subsidiary has a coordinating function within BSO/ORIGIN, in addition to which it also operates commercially in the 'external' market.

Not all BSO/ORIGIN services are available outside the Netherlands (where about 50% of the operating companies are located). However, it is the long-term intention of the company to be able to offer a range of services in line with the offering in the Netherlands and in the other countries in which it operates.

## Financial Information

### Exhibit C

#### FIVE YEAR FINANCIAL SUMMARY (FYE 31-12) (DFL MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenue	137.4	163.5	227.9	392.4	541.8
Annual Growth Rate (%)	32	19	39	72	38
Profit before Taxes	19.8	24.1	29.5	31.8	34.3
Annual Growth Rate (%)	47	22	22	8	8
Profit after Taxes	11.2	14.7	18.5	21.0	14.3*
Annual Growth Rate (%)	45	31	26	14	-32

\*BSO/ORIGIN attributes the decrease in profit after taxes to the extensive re-organisation carried out in the second half of 1992.

**Market Analysis****Exhibit D****1991 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	70	32
Process Manufacturing	35	16
Transportation	15	7
Utilities	5	2
Telecommunications	5	2
Retail Distribution	5	2
Wholesale Distribution	10	4
Banking and Finance	35	16
Insurance	10	4
Local Government	10	4
National Government	10	4
Business Services	15	7
<b>TOTAL</b>	<b>225</b>	<b>100</b>

*Data may not add to total due to rounding.*

\*INPUT estimate of software and services revenues

**Exhibit E****1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)**

	REVENUES*	PERCENT
Turnkey Systems	35	15
Application Software Products	5	2
Professional Services	170	75
Systems Operations	5	2
Systems Integration	15	6
<b>TOTAL</b>	<b>225</b>	<b>100</b>

\*INPUT estimate of software and service revenues

## Exhibit F

1991 MARKET ANALYSIS BY COUNTRY MARKET (\$ MILLIONS)

COUNTRY	REVENUES*	PERCENT
France	4	2
Germany	9	4
U.K.	16	7
Italy	9	4
Netherlands	165	73
Belgium/Luxemburg	18	8
Spain	2	1
Switzerland	2	1
<b>TOTAL</b>	<b>225</b>	<b>100</b>

\*INPUT estimate of software and services revenues

## Company Strategies

### (a) Company Direction

BSO/ORIGIN's prime objective is to provide high-quality services both to commerce and industry and to government, with a view to supporting the principle of introducing new technology - in the broadest sense of the word.

This support is extended in the form of consulting, project management, system development, implementation, education and training.

In 1991 BSO/ORIGIN undertook an extensive re-organisation of its business. In 1990 BSO entered the international services market under the name ORIGIN Technology in business. By the end of that year, the company felt that the operation was too complex and to a certain extent uncontrollable. It was therefore felt necessary to make a number of changes. The restructuring cost approximately DFL 9.2 million after tax.

BSO/ORIGIN has now fully implemented these measures and expects a reduction in cost from 1992. BSO/ORIGIN has geared its new operation towards internationalisation of its services.

The company is aiming to provide all its services on an international level through a network of local offices.

In support of this, BSO/ORIGIN has been actively seeking and investigating possible foreign acquisitions. This policy has proved relatively successful for the company and it will continue to show interest in companies that can expand or enhance its range of products and services.

### **(b) Conclusions**

As part of its re-organisation the reporting lines within the company have been changed.

There is now only one management layer above the operating companies. The operating companies have been grouped into regions that are larger, the same or smaller than a country, and a director has been appointed for each region. These regional directors form the Management Committee together with the day-to-day management of BSO/Beheer.

This new structure means that BSO/ORIGIN now has an organisation with very short lines of communication, despite its international character and relatively large size.

The autonomy of the operating companies has been guaranteed and the change ensures direct lines of communication with the management company.

BSO/ORIGIN is very customer driven. The company has had a policy in operation over the last few years, aimed at setting prices and margins that were acceptable to clients.

Furthermore, the globalisation of BSO/ORIGIN's client operations has led the company to commence operations in Brazil, Taiwan and India.

It is hoped that the measures taken in 1991 have made BSO/ORIGIN a more flexible organisation. In the short term the company hopes to achieve growth organically. The level of cost control which has now been attained should enable the organisation to achieve higher profit margins than has been the case so far.



## COMPANY PROFILE

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### **BT CUSTOMER SYSTEMS**

Guidion House  
Harvest Crescent  
Ancells Park  
Fleet, Hampshire GU13 8UZ  
United Kingdom  
Tel.: 44 252 777 000  
Fax: 44 252 777 111

Managing Director: Bill Halbert  
Status: Subsidiary  
Number of Employees:  
Revenue: (FYE 31-3-92): BT plc £13.3 Billion

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### **The Company**

BT Customer Systems, with total revenues of approximately £200 million in 1991, has been described as the largest U.K.-owned supplier of computing services. The company was formed in 1990 from a large number of individual BT profit centres and is particularly active in the systems integration market.

Throughout its existence, BT Customer Systems has emphasised its desire to be the prime contractor for large, complex projects. It now intends to develop into a truly international business and become one of the leading five vendors in its chosen markets globally, within five years.

### **Organisational Structure**

BT Customer Systems' organisational structure is shown in Exhibit A.

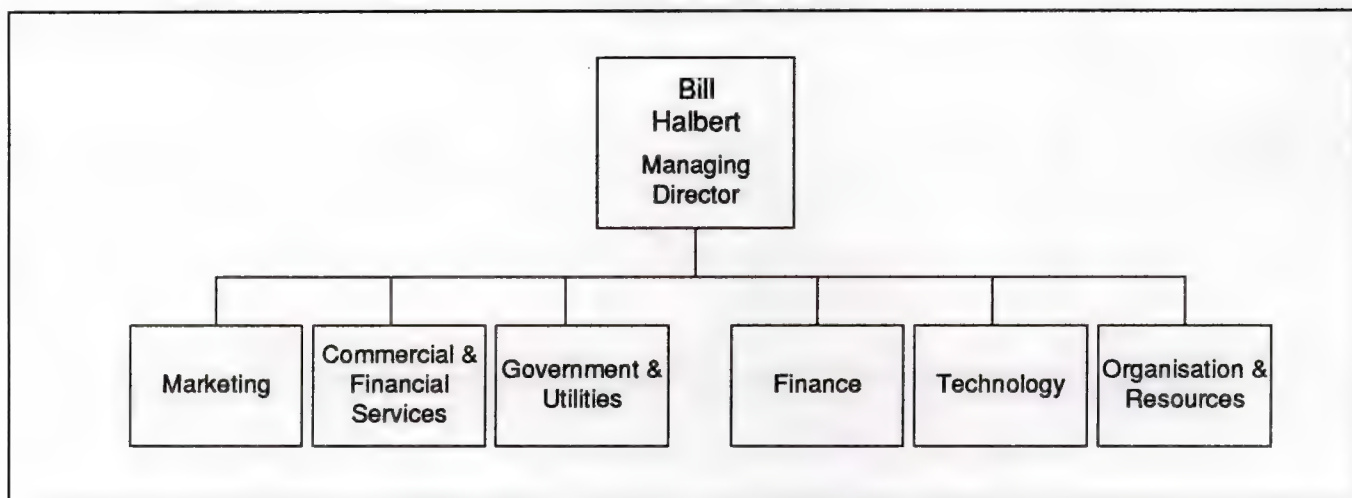
The company has two main industry-focused business operations:

- The commercial and financial services group (headed by Rick Greengrass)
- The government and utilities group (headed by Dave Musson)

These two sectors can be further broken down into BT Customer Systems' target markets. These are:

- Commercial and financial services:
  - Retail banking
  - Wholesale finance
  - Insurance
  - Transportation
  - Manufacturing
  - Retail

- Government and utilities
  - Civil
  - Defence
  - PTTs
  - Utilities

**Exhibit A****BT CUSTOMER SYSTEMS****Acquisition History**

BT Customer Systems has only made one acquisition since its formation. In June 1991, the company acquired the dealing-room systems company FTT from Alphameric for £1.85 million.

**Major Recent Projects**

Recent projects carried out by BT Customer Systems include:

- New air cargo system for the U.K. cargo community. Using this system (CCS-UK), the cargo community will be able to interface electronically with multiple cargo carriers from a single, intelligent terminal, to establish cargo space availability, book space and track shipments. The new system will, in turn, be linked to the CHIEF System, also being developed by BT Customer Systems for HM Customs and Excise and due to come on-line from late 1992 onwards.

Exhibit B provides examples of other projects undertaken by BT Customer Systems.

Exhibit B

**TYPICAL PROJECTS  
BT CUSTOMER SYSTEMS**

Client	Nature of Project
ICI	Global communications infrastructure
BP	Emergency control centre
Mercantile Credit	Network integration between credit reference agency, mainframe, and dealer workstations
Department of Social Security	Strategy terminal systems programme
HM Customs & Excise	Customs handling of import and export freight
Digital	Telemarketing system

**Key Products and Services****Technologies**

BT Customer Systems has expertise in two important business process re-engineering technologies: telemarketing and image processing. In these areas, the company has developed relationships with a number of suppliers to gain access to a range of products, ensuring that BT Customer Systems does not become tied to a specific platform.

Historically, the majority of the company's projects have been network integration projects.

The company's current market foci also reflect its targeting of communications-intensive applications. These foci are:

- Solutions related to the interfaces between enterprises, their customers and their partners, for example:
  - Voice response systems
  - EDI
  - Telemarketing
- Systems that support new organisational structures or cultures, for example:
  - Teleworking systems
  - Corporate messaging/office automation systems
  - Change management consultancy
- Systems that assist enterprises in delivering service to their customers, for example:
  - Document image processing
  - Home-banking systems
  - Retailing systems

The principal industries being targeted by BT Customer Systems are:

- Banking and finance
- Government - both civil and defence
- Transportation
- Manufacturing

The company has its own products for the banking sector. These products are packaged under the identities Integrated Trading Systems (ITS) and Open Trading Systems (OTS). ITS encompasses switches and dealer boards, while OTS provides distribution of data in video or digital form. BT Customer Systems has also developed an advanced cargo

processing system for use by airlines, freight forwarders and customs authorities.

BT Customer Systems views co-ordination between elements of the extended enterprise as a major opportunity within the manufacturing sector.

### Financial Information

As part of the BT Group, BT Customer Systems does not publish separate accounts; accordingly, Exhibit C shows a four-year financial summary for the BT Group.

#### Exhibit C

#### BRITISH TELECOMMUNICATIONS PLC. FOUR-YEAR FINANCIAL SUMMARY (FYE 31-3) (£ MILLIONS)

	1989	1990	1991	1992
Revenue	11,071	12,315	13,154	13,337
Annual Growth Rate (%)	-	11	7	1
Profit before Tax	2,437	2,302	3,075	3,073
Annual Growth Rate (%)	-	(5)	34	(65)
Profit after Tax	1,579	1,535	2,080	2,074
Annual Growth Rate (%)	-	(3)	(36)	(<1)
Earnings per Share	25.9	25.0	34.0	33.2
Annual Growth Rate (%)	-	3.5	36	(2)

### Market Analysis

INPUT estimates that BT Customer Systems' noncaptive business in 1991 accounted for £120 million of revenue. Exhibits D and E show a breakdown of this revenue by INPUT delivery mode and by industry sector.

## Exhibit D

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (£ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Professional Services	30	25
Network Services	30	25
Systems Integration	45	37
Systems Operation	15	13
<b>TOTAL</b>	<b>120</b>	<b>100</b>

\* INPUT estimates

## Exhibit E

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR.  
EUROPEAN SOFTWARE AND SERVICES (£ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Transportation	10	8
Banking and Financing	10	8
National Government	40	34
Other Sectors	60	50
<b>TOTAL</b>	<b>120</b>	<b>100</b>

\*INPUT estimates

## Company Strategies

### Company Direction

BT Customer Systems aims to be the one of the top five system integrators worldwide by 1997-1998, providing services to companies across a broad range of vertical sectors in the main global markets.

The company's mission is to satisfy client needs for increased competitiveness by supplying and supporting integrated, leading-edge, strategic business systems and services.

The company's strategy is to work with customer organisations at the highest levels to facilitate the management of corporate change. Adding value in the 1990s, according to the company's philosophy, is about using scarce business and technical skills to make information systems work competitively.

### **1. Geographic Coverage**

BT already has office locations worldwide, and BT Customer Systems will increasingly deploy its own personnel within this infrastructure. However, the company will also speed this process by means of acquisitions, should suitable companies become available.

### **2. Partnerships**

While BT Customer Systems intends to develop its own skills in business process re-engineering and change management, it may need to use partners to supplement its own skills in these areas in the short term. Other areas where the company will need partners are in developing its global market coverage and in obtaining access to advanced technology.

### **Strengths and Weaknesses**

BT Customer Systems' main strengths can be summarised as:

- Access to financial resources
- Network integration expertise
- Customer base in U.K. public sector

BT Customer Systems' main strength is its financial stability, which allows it to minimise the financial risk for its customers and gives the company the credibility needed to win major SI projects.

The company has strong network integration expertise and through BT has access to a vast pool of technical skills. BT claims to have the largest research and development capability in the U.K. Specialist skills include software development, the latest technologies in voice and data communications and networking.

Another strength is the company's large U.K. public sector customer base. The company has carried out projects for both civil government and defence, including HM Customs and Excise, Department of Social Security and the Ministry of Defence.

The main challenge facing BT Customer Systems will be to successfully expand its activities both vertically and geographically. Currently, the company is primarily U.K.-based and is mainly active in the U.K. public sector and in the telecommunications sector, where a significant amount of work is carried out for its parent BT.

### **Conclusions**

Despite its apparent small size, BT Customer Systems has considerable scope to further develop its presence in the systems integration market. Roughly a third of the company's revenues are derived from captive business and over half of the remainder comes from the company's strong position in the public sector. The company's activities are also strongly concentrated in the United Kingdom.

BT Customer Systems' objectives are being addressed by:

- Adopting a strong market focus
- A change of image
- Forming appropriate partnerships

BT is well-positioned to meet its marketing objectives. The company's financial strength provides a key ability to undertake the sort of large, multinational systems integration projects that are becoming increasingly common, and being part of one of the world's largest telecommunications companies provides the advanced communication technologies needed in modern internationally networked systems.

### **Strategic Assessment**

Overall, BT Customer Systems should be favoured by the increasing adoption of client/server architectures, necessitating a greater communication emphasis, and by its own increasing emphasis on business solutions, which provide competitive advantage to its user organisations.

So far, BT Customer Systems has adopted a comparatively low profile in the systems integration market. However, this is now about to change. One of the first steps will be a change in company name from 'BT Customer Systems', accompanied by a major promotional campaign.

BT Customer Systems will also endeavour to change its skill set, moving away from 'code cutting' to skills such as business process re-engineering and change management. The company perceives that these skills are now vital to ensure that its clients get real value from new IS systems. As the skill mix begins to change, BT Customer Systems may in the future begin to subcontract low-skill activities such as programming, allowing the company to concentrate more of its resources on delivering improved business processes to its clients.



## COMPANY PROFILE

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### **CAP Gemini Sogeti**

Head Office  
6 Boulevard Jean Pain  
B.P. 206  
38005 Grenoble Cedex  
France  
Tel: 33 76 44 82 01

Chairman: Serge Kampf  
Vice Chairman: Philippe Dreyfus  
Status: Public  
Number of Employees: 20,000  
Revenue (FYE 31-12-91): FF 10.05 billion

General Management Office  
Place de l'Etoile - 11 Rue de Tilsitt  
75017 Paris  
Tel: 33 1 47 54 50 00

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### **The Company**

Cap Gemini Sogeti is the largest European independent professional services vendor with revenues of \$1.7 billion in 1990.

Five years ago Cap Gemini Sogeti was one of perhaps twenty vendors competing for market leadership. Today it is over twice the size of its nearest competitor in Europe. Now it has its sights set on achieving a similar position in the U.S. and Japan, while continuing to extend its European penetration.

Much of Cap Gemini Sogeti's growth has been obtained through acquisition, and in recent years the company has successfully developed leading positions in the United Kingdom and Germany, through its acquisition of Hoksins and SCS and its partnership with Debis Systemhaus.

CGS has clearly adopted a strategy of seeking partners to develop its business further and is known to have been in discussion with a number of major industrial groups and IS vendors during 1991. CGS is believed to have been in discussions with Olivetti Information Systems since it became clear that Finsiel would not be allowed to enter the private sector, and also with the Japanese software and services vendor CSK, part of the Mitsubishi Group.

**Organisational  
Structure**

Exhibits A to D outline the structure of the CGS group and its major subsidiaries, at year-end 1990.

The board of directors for Cap Gemini Sogeti consists of:

- Serge Kampf, Chairman
- Pierre Clier
- Michel Jalabert
- Michle Kampf
- Bruno Roger
- Ernest-Antoine Seillire
- Daniel Setbon.

Following the acquisition of Hoskyns in 1990, the company is organised into four operational groups:

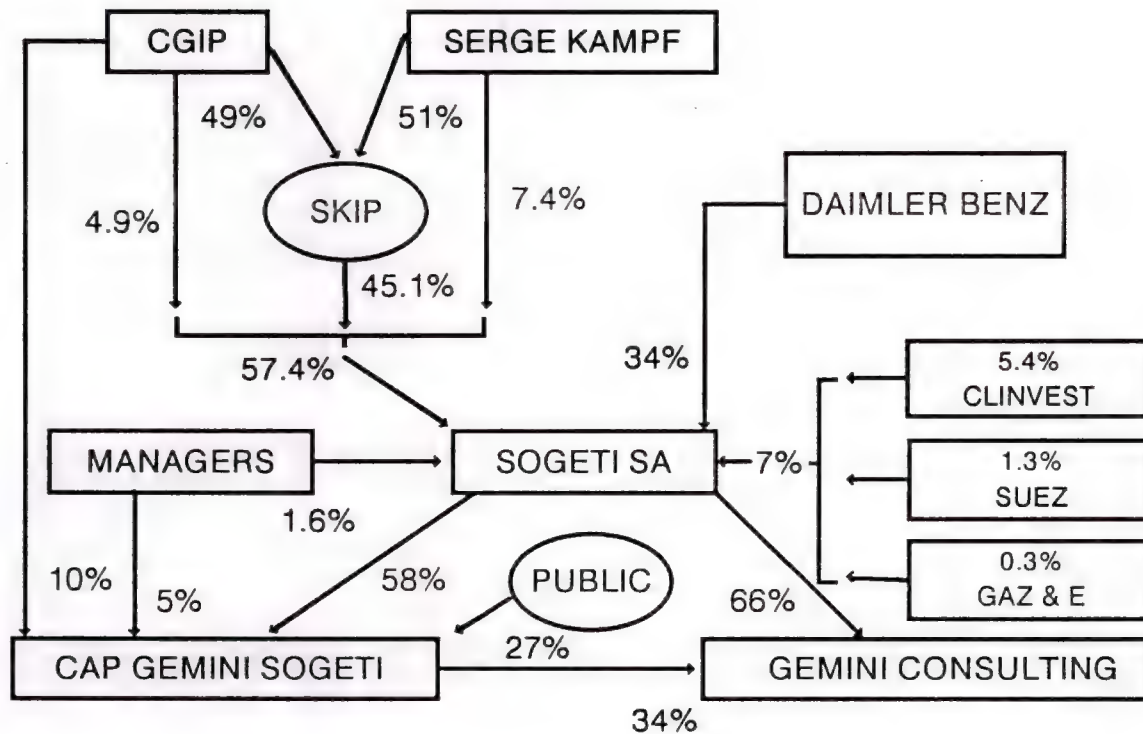
- Cap SESA (France)
- Cap Gemini Europe
- Cap Gemini America
- Hoskyns (UK).

These operational groups are supported by a fifth subsidiary Cap Gemini International Support.

Cap Gemini Sogeti was founded on 1 January, 1975 through the merger of the Sogeti Group, established by Serge Kampf in Grenoble in 1967, Cap and Gemini, a company founded in 1968.

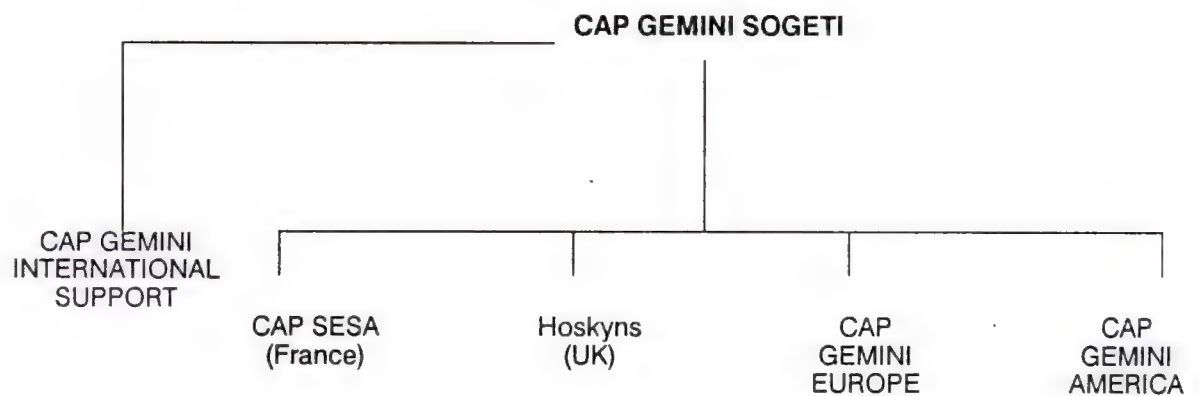
## Exhibit A

## CAP GEMINI SOGETI OWNERSHIP



## Exhibit B

## CGS ORGANISATION STRUCTURE



Cap Sesa is the French holding company which combines all the operational companies in France specialised according to type of customer (banks, industry, etc.), or technique (training, maintenance, etc.).

The chairman and CEO of Cap Sesa is Jacques Arnould. The activities of each of Cap Sesa's subsidiaries are briefly as follows:

- |                      |  |
|----------------------|--|
| Cap Sesa Defense     | - Chairman: Yves Veret<br>Covers military command systems, and French navy and airforce.   |
| Cap Sesa Industrie   | - Chairman: Jean-Marc Claudon<br>Covers following sectors:<br>petrochemical and food, electronics and engineering, chemical and pharmaceutical, mechanical engineering and automobile, space and communications, aeronautics and nuclear, telecom industry, arms industry, computer manufacturers, manufacturing automation. |
| Cap Sesa Tertiaire   | - Chairman: Henri Sturtz<br>Covers following sectors:<br>energy, transportation, and insurance.  |
| Logista              | - Chairman: Jacques Berthelot<br>Covers videotex and other applications.   |
| Cap Sesa Conseil     | - Prior to formation of Gemini Consulting, handled Cap Sesa's consulting activities.   |
| ITMI                 | - Chairman: Gérard Mezin<br>Specialises in artificial intelligence applications and vision systems.  |
| APTOR                | - Chairman: Claude Otrage<br>Specialises in local area networks, particularly in industrial environments.  |
| APSIS                | - Chairman: Claude Otrage<br>Specialises in robotics.  |
| Cap Sesa Formation   | - Chairman: Bernard Joulie<br>Cap Sesa's training organisation.  |
| Cap Sesa Maintenance | - Chairman: Jean-Francois Dubourg.   |

- |                       |   |
|-----------------------|---|
| Cap Sesa Exploitation | - Chairman: Jean-Claude Buselli<br>Covers bureau activities targeted at finance, industrial, and service sectors. |
| Cap Sesa Telecom      | - Chairman: Maxine Donal<br>Covers CGS' activities for France Telecom.  |
| Cap Sesa Finance      | - Chairman: Joseph Guegan<br>Covers CGS' activities in the Banking and Finance sector.                            |
| Cap Sesa Regions      | - Chairman: Jean-Philippe Gaillard<br>Covers sales to industry and service across six geographic regions.         |

Hoskyns conducts business throughout the UK and Ireland in three large professionally-specialised divisions: consulting and assistance, systems integration and facilities management.

Cap Gemini Europe represents the companies of the other 11 European countries in which the group is located. Because of the size reached in four of these countries (the Netherlands, Sweden, Italy and Germany), a national holding company has been set up to cover several subsidiaries devoted to specific business sectors. The national companies are now grouped into five areas - Benelux, Nordic, Germany/Austria, Italy and Switzerland/Spain.

Cap Gemini America covers all of the territorial United States through a network of 8 areas and 40 branches with geographic, technical and market sector responsibilities.

The principal functions of Cap Gemini International Support are:

- In technical development, including quality assurance and R&D programme (Cap Gemini Innovation);
- In marketing development by business sector (banking and insurance, energy, civil aviation, petrochemicals, industry etc.), and within the framework of international projects.
- As a central support in managing the group's references and in monitoring relations with the hardware manufacturers.

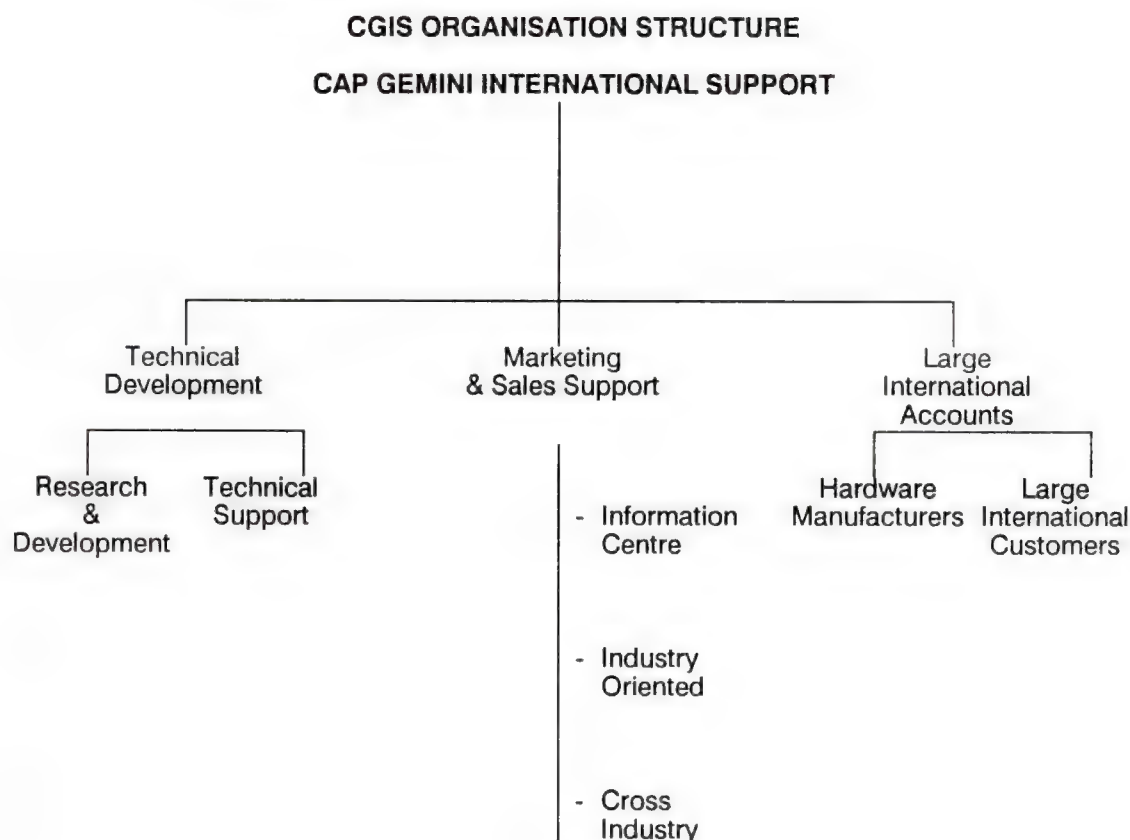
## Exhibit C

## CAP SESA ORGANISATION STRUCTURE

## CAP SESA

	-	- CAP SESA REGIONS
CAP SESA DEFENSE	-	
	-	- CAP SESA FINANCE
CAP SESA INDUSTRIE	-	
	-	- CAP SESA TELECOM
CAP SESA TERTIARE	-	
	-	- CAP SESA EXPLOITATION
LOGISTA	-	
	-	- CAP SESA MAINTENANCE
CAP SESA CONSEIL	-	
	-	- CAP SESA FORMATION
ITMI	-	
	-	- APSIS
APTOR	-	

## Exhibit D



On December 31 1990, Cap Gemini Sogeti employed about 18,900 people, of which 6,400 are based in France. More than 3,000 work for Cap Gemini America, and 3,600 for Hoskyns while 200 are employed by Cap Gemini International Support. The distribution of the nearly 5,700 employees of Cap Gemini Europe is roughly as follows:

West Germany	1,100
Belgium	300
Spain	300
Italy	1,100
Norway	200
Netherlands	1,450
Sweden	1,100
Switzerland	<u>200</u>
	5,700

Like the majority of the professional services vendors, CGS does not have a specific organisation addressing systems integration. Systems integration opportunities will be primarily addressed by Gemini Consulting and CGS's major industry-specific organisations.

## Acquisition History

Major acquisitions currently underway include Programmator - the market leader in Sweden, and Volmac the largest vendor in the Netherlands.

Exhibit E summarises CGS' acquisition history in recent years.

### Exhibit E

**CGS ACQUISITION HISTORY 1986-1991**

YEAR	COMPANY ACQUIRED
1990	HOSKYNS (69.5%) - U.K. United Research - U.S. Gamma International - U.S. Teleinformatica - Italy Sysdata - Italy AIC - Italy SCS - Germany
1989	Accept Data - Sweden Compact Data Systems - U.S. Apsis - France Aptor - France
1988	Datalogic - Sweden Sofcon - Denmark AD&D - Denmark Heikkamaki - Finland ITMI - France
1986	IBAT - Germany GE-DA - Italy SESA (42% holding increased to 93%) - France The Consulting Division of CGA Computer Inc - U.S.

The main acquisitions by Cap Gemini between 1986 and 1988 were:

- SESA (France)
- Data Logic (Sweden)
- IBAT (West Germany)
- GE-DA (Italy)
- ITMI (France)

Acquisitions by Cap Gemini in 1989 and 1990 include:

- Gamma SA (France)
- United Research (U.S.)
- SCS (Germany)
- Hoskyns (U.K.)
- Accept Data (Sweden)
- Compact Data Systems (U.S.)
- Apsis (France)
- Aptor (France)

Cap Gemini Sogeti also acquired a 36% share in CISI (France) in 1987, and has built up a significant holding in the rival Sema Group.

United Research was purchased in May 1990; it has 500 consultants in the U.K. and the U.S., and a forecast annual turnover of \$135 million.

In July 1990, SCS, a loss-making German systems integration company, was bought from SD-Scicon. Cap Gemini paid over \$40 million and assumed a debt of \$20 million to obtain the company.

Cap Gemini has also reinforced its position in Italy with the acquisition of Teleinformatica, Sysdata, and AIC.

These acquisitions have enabled the company to attain the critical size in Germany and Italy to build vertical organisations similar to those in the Netherlands and Sweden.

In January 1990, CGS took a 67.5% stake in Gamma SA, which has 220 employees, and was part of Saatchi & Saatchi's consultancy business. It has a \$20 million turnover.

The Hoskyns acquisition, made in July 1990 just after the SCS purchase, was the most significant. It solved a major problem for CGS in that although the U.K. is the third largest country market in Europe, it accounted for less than 2% of CGS's 1988 revenues. This acquisition also provides CGS with an opportunity to leverage Hoskyns' facilities management skills in other countries in Europe. Although Hoskyns had recently withdrawn from the Dutch facilities management market, and decided not to enter the German facilities management market, it is the clear market leader in facilities management in the U.K.

The acquisition of Hoskyns led the market to believe that Cap Gemini would not wish to increase the stake in rival Sema, but taking advantage of a drop in price, it has increased its stake in Sema to 26%.

CGS has also acquired a small stake in Volmac, one of the leading professional services companies in the Netherlands, which launched a new facilities management service at the beginning of 1990.

In 1991, CGS considerably strengthened its position in Germany with the announcement of a partnership with Debis Systemhaus, a subsidiary of Daimler-Benz.

On July 23rd Daimler-Benz and Sogeti announced that the German group would take a FF2.4 billion 34% stake in Sogeti, with an option to take a controlling interest in 1995.

First step will be a German joint venture with a 51% holding for Debis Systemhaus, the computer services arm of Daimler-Benz formed in 1990, and 49% for the German subsidiary of CGS.

Debis Systemhaus is a spin off of the DP activities within the Daimler-Benz group of companies. It is a subsidiary of Debis (Daimler-Benz Interservices) as one of a group of five companies such as Debis Financial which offers primarily vehicle leasing facilities through a staff of 6,000 worldwide.

Debis Systemhaus operates within five business areas:

- Computer/Communication Services (1,200 staff)
  - 50 regional DP centres operated primarily for Daimler Benz group
  - Germany's largest computer network
  - Computer centre back-up services
  - Systems integration
  - Hardware services
- Business Systems and Projects (1,000 staff)  
Custom and standard solutions for:
  - Finance/lease sector
  - Personnel and financial systems
  - Sales consulting, fleet planning and spare part disposition
  - Tax consultants and accountants
  - Garages and sales companies
  - Logistics , distribution and transportation companies
- Industrial Systems and Projects (800 staff)
  - Strategic IT consulting
  - Engineering and CAD systems
  - Other manufacturing and support systems
  - Value-added networks

- **GEI Systemhaus (800 staff)**  
A long established professional services group offering software tools with specialisms including IT security.  
The group is best known for handling very large projects for:
  - Manufacturing automation
  - Telecommunications, Airports and Government
- **Training and Consulting (180 staff)**

Recent acquisitions by Debis include the Diebold Group (IT skills training), Orga-Soft (logistics) and Systemhaus Curadata (tax accountant software).

Debis will also strengthen the CGS position in Systems Operations, extending its market leadership in the U.K. into Germany and bringing economies of scale and greater credibility to the new facilities management venture formed in France between Hoskyns and Cap Sesa.

In the manufacturing sector Debis brings an exceptional German centre of excellence to CGS. What better place for a professional services vendor to build a market leading position in manufacturing?

In terms of 1990 revenues Debis adds \$420 million (DM750M) to Cap Gemini Sogeti's \$1,680 million (FF9,200M). The German workforce increases from 1,000 to around 5,000 - one quarter of the new group's European workforce - compared to staff levels of 6,400 in France and 3,600 in the U.K.

All of CGS' acquisitions are consistent with a strategy of providing a complete range of strategic services in all the country markets of Europe.

## Key Products and Services

### (i) Technologies

To back up its services, the group depends on three types of skills: technological command (of hardware and software), working methods (from conducting interviews to piloting large projects) and a firm knowledge of business sectors. The appearance of new technologies, the growing diversity of applications and the complexity of problems that need to be solved are guiding this expertise along three main tracks:

- **Extension of basic technical knowledge** into such areas as artificial intelligence, "fuzzy" logic, object-oriented languages, portable operating systems (UNIX), computer vision and man-machine interfaces.

- **Specialisation** in the fields of systems architecture, data structuring, knowledge-based systems, software engineering tools, networks, etc.
- **Concentration** on one of eight economic sectors (finance, industry, trade, telecommunications, defence, government, information technology and science) to gain supremacy in a specific type of application.

In a continually-evolving market, Cap Gemini Sogeti has endeavoured to enhance its know-how so that it always has new and better technological solutions to propose and develop for its clients. With this in mind, Cap Gemini Innovation - a subsidiary of CGIS - stays on top of the new ideas emerging from research centres all over the world, and validates these areas through participation in national and international research programs. Once the technology has been mastered, it can be transferred to the group to service its clients.

#### (ii) Industry Knowledge

CGS' strength in particular industry sectors varies from country to country. The main sectors served by CGS in each of the major countries and on a pan-European basis are as follows:

##### **France**

- Manufacturing
- Banking and Finance
- Defence
- Telecommunications

##### **Germany**

- Manufacturing
- Telecommunications

##### **UK**

- Manufacturing
- Distribution
- Banking and Finance
- Government

##### **Italy**

- Finance and distribution
- Aerospace and defense
- Public Sector and Telecommunications
- Manufacturing

**Pan-European Coverage**

- Banking and Finance
- Energy
- Civil aviation
- Petrochemicals
- Manufacturing

**Recent Major Projects**

Cap Gemini Sogeti claims to be more and more frequently involved in projects extending over several years, revenues from which may vary from a few tens to several hundred million francs. 1990 was a particularly noteworthy year for the Group in this regard, insofar as a number of large contracts were signed, more than 15 of them in France alone. These include:

- ARTERE, the new remote control network which will give EDF long-distance command and control of electrical energy production and transportation throughout France.
- AIDCOMER, the support system to equip the French naval fleet.
- The national telephone network management system, enabling France Telecom to observe the flow of telephone traffic and reroute calls in case of malfunctions (overloading, breakdowns, etc).
- A DP management system for the Swedish Customs Service for handling a variety of documents (taxes, registrations, export declarations, etc).
- A financial services DP system for the Nederlandse Middenstands Bank in the Netherlands.
- The process management and control system for a Soviet industrial complex producing building materials and plumbing fixtures.
- OCTOPUS, the DP system for the regional police forces in the Netherlands. This system will handle wide-spread criminal inquiries and centralise all files and information relevant to criminal investigations (report, interviews, photographs, etc.).
- Conversion and adaptation of a portfolio management system for the Banca Catalunya of Barcelona.
- For Firestone in the US, a large computer-aided manufacturing (CIM) agreement for computerising a production cycle (from specifications through implementation).

- In Japan, the design study for a vision system which will be installed in future Mazda models for use in obstacle detection.
- In Poland, an IT training agreement for managers and other executives in the Gdansk region.

Other major projects in which CGS has been involved include:

## FRANCE

- The Electronic Directory of the French PTT (Telephone and Telegraph), the largest distributed DP system of its kind in the world with 10 million terminals planned for 1995. The Group has been a prime contractor in this project since it was launched in 1980, and continues to take charge of its extensions throughout France.
- France Telecom's national telephone control system.
- ARTERE (remote control network architecture), the world's largest remote controlled network for electrical production and transmission. (Prime contractor and developer of the network for EDF.)
- SIT (Système Internamcaire de Telecompensation, or Interbank Clearinghouse System, for the automated and continuous transmission of deposit orders between the major French banks).
- SIMON, the new card management system for Credit Agricole, the largest network of its kind in the world devoted to a single bank.

## ITALY

- Development of an integrated test analysis system for the components of the propulsion motor of the Vulcan rocket, and the information system for the Ariane V rocket.
- City of Rome Urban Information System.

## NORWAY

- TELEDATA, the Norwegian national videotex system.

## THE NETHERLANDS

- VASLOG/DOC, the inventory control system for the Royal Dutch Navy (370,000 coded items to maintain the 50 vessels of the Dutch fleet).

## SWEDEN

- STOCKHOLM Securities Exchange, development of a front-office system for trading rooms.
- For FAA (the Swedish Aeronautical Research Institute), the data acquisition system for the transonic wind tunnel).

## GREAT BRITAIN

- CENTRAL MIDDLESEX HOSPITAL, full turnkey implementation covering training, consultancy and maintenance of a Hospital Information Support System over a 7 year period.
- EUROTUNNEL, integrated network for Europe's largest construction project, provides data transmission among 300 workstations distributed among 30 sites in Great Britain and France.

## GERMANY

- Urban transportation DP system for the Rhine-Ruhr region.

## UNITED STATES

- OWENS FIBERGLASS, chemical bar-coding system for a worldwide chemical manufacturer, design, development and implementation of a custom system to eliminate paperwork and provide accurate usage information.
- JOHNSON & JOHNSON, integration of a decentralised state-of-the-art warehouse control system for a worldwide supplier of hospital and medical supplies.
- FIRESTONE, factory floor automation and supervisory control project (from front end requirements definition to factory installation and testing, development of a real-time data acquisition and reporting systems).

## JAPAN

- For the Japanese automobile manufacturer, Mazda, study and design of an onboard obstacle-detection vision system for the "car of the future".

## EASTERN EUROPE

- Development of a process management and control system for four factories belonging to Soviet industrial complex producing tile, brick and plumbing fixtures.
- Installation of a computerised system for a meat processing plant in Estonia.

## INTERNATIONAL PROJECTS

- Refurbishing of a worldwide information system serving several large British petroleum companies.
- Management system for the European distributors of an American automobile manufacturer.
- Integration of the information systems of the international network of Societe Generale's leasing division.

Financial  
Information

Exhibit F shows CGS' overall financial position world-wide and includes the \$220 million revenues generated in the US in 1990. The revenues of the acquired companies, Hoskyns in the UK and SCS in Germany, are only consolidated from the time of their acquisition.

## Exhibit F

## FIVE YEAR FINANCIAL SUMMARY FOR CGS (\$ MILLIONS) (FYE 31-12)

YEAR	1986	1987	1988	1989	1990
Revenues	539	766	1,067	1,294	*1,683
Annual Growth (%)	-	42	39	21	30
Profit after Taxes	35	51	74	96	114
Annual Growth (%)	-	46	45	30	19
EPS (\$)	9.9	13.1	16.2	3.8	4.1

\*Note: Hoskyns revenues consolidated from 1 July 1990.

The compound annual average growth rate in revenues achieved over the period 1986 to 1990 is 33% per annum. However much of this growth has been achieved by mergers and acquisitions rather than organic growth.

CGS has announced provisional results for 1991 showing revenue growth of 10% to FF 10 billion and net income down by 10%.

## Exhibit G

## KEY FINANCIAL RATIOS

	1986	1987	1988	1989	1990
Revenue per employee (\$000's)	82	86	93	100	102
Profit per employee (\$000's)		10.6	10.5	11.1	11.4
Return on sales (%)		19.1	13.1	11.1	11.1
Return on capital employed (%)		25.1	19.4	17.5	12.0

**Market Information**

Exhibits H and I show the breakdown of the company's Western European revenues in 1990. Both these charts include the full year revenues of the acquisitions Hoskyns and SCS.

## Exhibit H

BREAKDOWN OF REVENUES BY COUNTRY, 1990  
WESTERN EUROPE, INPUT ESTIMATES

COUNTRY	REVENUES \$ MILLIONS	PERCENT	COUNTRY MARKET SHARE (%)
France	640	39	4.0
UK	410	25	3.2
Netherlands	150	9	3.8
Sweden	140	8	4.8
Germany	125	8	1.0
Italy	90	5	1.4
Spain	40	2	1.8
Rest of Western Europe	55	4	0.5
Total	1,650	100	

Note: Includes Hoskyns' & SCS revenues for full-year

CGS' German revenues for 1991 will be boosted significantly by the merger of its activities and those of Debis Systemhaus. Clearly, within Western Europe CGS must now be concerned to enhance its market position in Italy and Spain, and to a lesser extent, the countries not listed in Exhibit H.

## Exhibit I

**BREAKDOWN OF REVENUES BY DELIVERY MODE, 1990  
WESTERN EUROPE, INPUT ESTIMATES**

DELIVERY MODE	REVENUES \$ MILLIONS	PERCENT
Processing Services	40	2
Turnkey Systems	70	4
Application Software Products	30	2
Systems Software Products	35	2
Professional Services	985	60
Systems Integration	330	20
Systems Operations	160	10
Total	1,650	100

Note: Includes Hoskyns' & SCS revenues for full-year

Historically CGS has concentrated on marketing professional services, typically custom system development, and has had an aversion to being in the product business, either software or hardware. It is unlikely that the company's aversion to product ownership will change in the foreseeable future, even though software products are sometimes acquired as part of CGS' acquisition of professional services groups.

CGS' emphasis is now developing from professional services into systems integration and systems operations. A key element of the Hoskyns' acquisition is its leadership position in the systems operations market in the UK. CGS will endeavour to utilise this expertise to develop systems operations presence elsewhere in Europe.

Exhibit J provides INPUT's estimate of the breakdown of CGS' revenues by industry sector.

## Exhibit J

**1990 MARKET ANALYSIS BY INDUSTRY SECTOR  
WESTERN EUROPE, SOFTWARE & SERVICES**

INDUSTRY SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Banking & Finance	330	20
Manufacturing	550	33
Government	200	12
Distribution	100	6
Services	150	9
Other	320	20
<b>TOTAL</b>	<b>1,650</b>	<b>100</b>

\*INPUT estimate

### Strategic Analysis

#### (a) Company Direction

CGS has been involved in large project contracting for some considerable time, notably for France Telecom, but it was only towards the end of the 1980's that the company recognised this delivery mode. A list of recent projects is provided in Appendix A.

Accordingly the company is now trying to switch from its branch-oriented, body-shopping mentality to develop its large project capability. CGS recognises that this requires a detailed understanding of business needs on a sector-by-sector approach, a pan-European capability to serve pan-European clients, and business consulting expertise alongside the company's more traditional technical strength.

CGS' goal is to become one of the leading vendors of software and services world-wide, with a major presence in every geographic market, and offering a full range of services.

In 1988, with the acquisition of Sesa, CGS added systems integration to its range of services and in 1990, CGS entered the market for management consulting and systems operations.

(i) Gemini Consulting

The nature of large projects has changed in recent years, with companies seeking to use IS to achieve business transformation rather than merely automating existing administrative functions. This has changed the requirement placed on software and services vendors from technical skills and body-shopping to consulting skills and industry knowledge.

In response to this growing market demand for management consulting services, Sogeti created a "Consulting Group" in 1990 that is structurally and professionally independent of Cap Gemini Sogeti. The new group, called Gemini Consulting, is a global management consulting company that works with large, complex companies to help them achieve true business transformation.

CGS recognised that three key disciplines were needed to help clients transform their business: strategy, value chain management, and information technology. To gain access to these skills, Gemini Consulting was formed from the combination of three consultancies with the following skills:

- MAC Group - strategy
- United Research - change management
- Gamma International -organisation and information systems.

CGS believes that the combination of these skills is critical to developing its presence in system integration.

Overall, Gemini Consulting has complementary skills in the areas of strategy formulation and implementation, shareholder value creation, management of change, business process improvement, organisation effectiveness, information systems strategy and the design and implementation of automated systems and applications. Gemini's team also brings experience and expertise in all functional areas of today's business. Examples of these areas include marketing and sales, organisational design and diagnosis, cost analysis and profit improvement, product development, engineering, manufacturing operations, customer service, logistics, finance, human resource development and information technology.

Gemini Consulting has a professional staff of more the 800, and 1990 revenues of \$240 million.

It has offices on three continents: in North America (Cambridge, Massachusetts; Chicago; Morristown, New Jersey; and San Francisco), in Europe (Barcelona, Lisbon, London, Madrid, Milan, Munich, Paris and Rome), and in Asia (Tokyo). The plan is to use the resources of Sogeti to expand in other geographic areas. This geographic scope allows Gemini to serve its clients in the key arenas in which they operate.

Gemini's Executive Committee, which reflects this international dimension, is composed of:

- David Teiger (Chairman)
- James N Kelly
- Daniel Valentino
- Serge Kampf
- Michel Jalabert

(ii) Geographic Coverage

CGS also believes that systems integration is going to become an increasingly pan-European, if not global, activity, and that a strong presence in each country market is essential to cater for the needs of the multinationals. Accordingly the company has recently developed its presence in the United Kingdom, Germany, and Italy, and considers it has now reached critical mass in each of:

- France
- Germany
- UK
- Italy
- Netherlands
- Sweden

CGS also formed Cap Gemini International Support in February 1990 to better prepare the Group's operational companies for the opening of the single European market and to facilitate exchanges across national frontiers. It combines international development activities in six sectors (banking and finance, insurance, energy, civil aviation, petrochemicals and telecommunications), along with international projects, pan-European technical support centres and research and development units.

CGS recognises the importance of targeting systems integration projects by vertical sector, and so one of its conditions for reaching critical mass is sufficient size to organise within each country along industry-specific lines.

While it can be argued that CGS still needs to expand its activities in Italy, Spain, and a number of the smaller European countries, a major concern is that only \$0.2 billion revenues in 1990 come from outside Europe - from the U.S. operations of CGS which saw revenues fall 12% to \$218M in 1990 from \$250M in 1989. So the question remains as to how the combined forces of Sogeti and Daimler-Benz can leverage their European power base to reach their declared goal of being a leading world player in the software services market.

Further partners will undoubtedly be brought into the group, along the lines of the Daimler-Benz agreement, to provide a global vehicle for delivery of professional information services. With some 50% of the world software and services market in the U.S.A. and a further 12% in Japan, the enlarged Sogeti group must now build on its European stronghold with some established leaders in these countries.

Some of Sogeti's competitors suggest that the unique management culture which has created CGS may not stretch to a global operation. However the tried and tested formula - adding leading national companies to the group, but encouraging them to retain their cultural freedom within a sound financial framework - shows little sign of running out of steam just yet.

### (iii) Partnerships and Alliances

Access to market leading products within each industry sector is crucial in serving the systems integration market. However it can be argued that product ownership is neither necessary nor desirable, more flexible access to product being achieved via partnerships and knowledge of a number of leading products.

So although CGS has always declared an aversion to being in the product business, either software or hardware, it does have all the alliances in place to enable it to deliver the very best and most suitable products as components of its solutions. It can be expected to continue to maintain its independence from product vendors.

CGS sees its own role primarily in services such as professional services but increasingly in systems integration and systems operations. It is not a product company and uses partnerships with the leading application software product vendors such as SAP to provide the products which its projects require. Its partnership with Debis in Germany has significantly expanded its presence in both Germany and the discrete manufacturing sector.

Other co-operative agreements include:

- an agreement to work with IBM on software products for the banking sector
- a joint venture with IBM in France for large-scale systems integration projects
- a joint venture with Bull for EDI.

**(b) Strengths and Weaknesses**

The company's main strength is its strong pan-European presence compared to the majority of software and services vendors.

Its main weakness has been its lack of business consulting capability compared to companies such as Andersen Consulting. The key challenge is to derive the benefits from Gemini Consulting in acquiring credibility with senior executives and access to systems integration projects.

The main challenges for CGS over the next few years are:

- To establish the position of Gemini Consulting as a leading consulting organisation.
- To develop further the links between Gemini Consulting and CGS' systems integration activities.
- To continue to expand the company's global presence, particularly in the US and Japan.

The need to change the emphasis of the company from technology implementation to business transformation is seen in the following comments about Hoskyns.

*"Hoskyns has changed. It is strengthening its consultancy and implementation skills in all its major business sectors: industry, distribution and retailing, finance, government and services. It is continuing to refurbish its technology skills: CASE tools, fourth generation languages, etc. But most importantly, Hoskyns is continuing to hone its ability to manage change in information technology on behalf of its customers so that they can gain significant business benefits."*

CGS is also keen to develop its presence in systems operations across Europe taking advantage of Hoskyns experience in this sector. This indicates another challenge for CGS: its ability to share and transfer expertise between organisations with widely different heritages and experiences to achieve a degree of synergy across all its operations.

CGS needs to continue to develop its industry-specific expertise and its access to leading application software products. The company's strategy of partnership rather than ownership has the advantages of increased flexibility and wider customer choice. However it is important that CGS maintains a level of detailed knowledge concerning the leading products so that the company remains a credible implementor of solutions based around them.

### **(c) Conclusions**

Along with IBM and Andersen Consulting, CGS looks certain to remain one of the major players in the Western European systems integration market. The company has established a lead over the other European professional services vendors in both the scale and the geographic scope of its operations. The company believes that this will give it a competitive advantage in targeting multinational corporations looking to carry out major pan-European projects. This would indeed appear to be the case, the principal threat coming from the major equipment vendors such as IBM and possibly Digital.

CGS has taken the lead in developing a business consulting organisation to provide entry into major companies seeking to re-engineer their business processes. If as expected, business process re-engineering, rather than application development, becomes the key driving force behind the systems integration market, then this approach provides CGS with an advantage over most of its competitors with the possible exception of Andersen Consulting.

While doubts have been expressed by CGS' competitors concerning its fragmented organisational structure and the company's ability to handle large projects, the company is putting considerable effort into team-building across its senior managers and has clearly demonstrated its ability to handle large systems integration projects in France.

**(d) Strategic Assessment - CGS**

CGS has achieved leadership in professional services within the European market through a strategy of acquisitions backed by a policy of strong local branches controlled by tight financial reporting requirements.

Today CGS is facing a number of key issues. The decline in demand growth for professional services is challenging their leadership position. the investment demands associated with systems integration and outsourcing increase the need for access to wider sources of capital and challenge the modular nature of the branch structure.

We expect CGS to continue with its aggressive acquisition policy but tempered by an increasing willingness to share control with 'national' companies. We also anticipate CGS making significant inroads into the outsourcing arena.

These activities and CGS's branch organisation structure are likely to limit CGS's ability to tackle major systems integration project contracting outside of its key French government utility market sectors. Its historical reluctance to 'own' software products will also be factor here in limiting its ability to develop market niches related to application requirements.



## COMPANY PROFILE

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### CGI INFORMATIQUE

30 Rue du Chateau des Rentiers  
75640 Paris Cedex 13  
France  
Tel.: 33 1 40 77 20 00  
Fax: 33 1 40 77 22 22

Chairman and CEO: Robert A. Mallet  
Status: Public  
Number of Employees: 4,000 (worldwide)  
Revenue: (FYE 31-8-92) FF 2.02 Billion  
(worldwide)

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### The Company

CGI Informatique was founded in 1951. The company is one of the leading French consulting and software engineering companies, judged by quantitative measures (revenue growth and profitability) and, it claims, in terms of its unique global offering. It operates in most European countries, Canada and the U.S.

Key clients throughout the world include: the Paris municipality, the U.S. Navy, the U.S. Air Force, banks, insurance companies, government ministries, local government administrations and all kinds of manufacturing and service businesses.

Since February 1986, CGI has been quoted on the OTC market of the Paris Stock Exchange.

### Exhibit A

#### SHAREHOLDERS

NAME	PERCENT OWNED
R.A. Mallet	10% <PO> 20%
B. Chapot	5% <PO> 10%
J. Debuissou	5% <PO> 10%
B. Stefani	5% <PO> 10%

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## Exhibit B

## KEY EXECUTIVES

NAME	POSITION
Bernard Chapot	Vice Chairman and CEO
Didier Roques	Executive Vice President (CGI Europe)
Christian Vialard	Executive Vice President (SIGAGIP Division)
Pascal Garrique	CASE Systems Division Officer
Alain Bouviala	Banking, Insurance, Services and Government Division Officer
Xavier Noury	Regional Branches Division Officer
Charles Tarbe	Manufacturing Industry Division Officer
Jean-Marie Helmer	Real-Time and Scientific Systems Division Officer

CGI Informatique has 18 main subsidiaries, which are shown in Exhibit C.

## Exhibit C

## MAIN SUBSIDIARIES

NAME	COUNTRY	% OWNED
CGI Corporation	France	100.00
CGI Corporation	Spain	99.97
CGI Informatique SA	Switzerland	98.00
CGI Informatica Srl	Italy	65.00
CGI Systems	Belgium	90.00
CGI Services	France	99.80
Logiciels SIRC	Canada	100.00
CGI Systems Plc	U.K.	99.00
Production Systemes Holding	France	77.60
DIDAO	France	97.18
CR2A	France	99.84
Groupe Eurequip Europe	France	99.97
CGI Consulting	Italy	92.00
CGI Informatik	Germany	100.00
CGI Corporation Ltd.	U.K.	55.00
CGI Informatica Holding BV	Netherlands	99.67
Prodstar SA	France	53.38
CGI Interprogram	Germany	70.00

As of August 1992, CGI Informatique employed 4,000 staff worldwide. Approximately 2,550 are employed in France, 1,050 in the rest of Europe and approximately 400 in North America.

In the 1990s, CGI Informatique plans to follow its policy of expanding its profitability, its territorial coverage and its activities.

**Acquisition History 1987**

CGI Informatique acquired the remaining 50% of ORDA-SYS, Belgium - now known as CGI Systems.

The French company CR2A (Conception et Realisation d'Applications Automatisees) was acquired. CR2A had 1987 revenues of about FF 120 million. CR2A specialises in the development of advanced scientific and real-time systems.

**1988**

CGI bought 53% of the U.S. professional services company, Matrix, for \$3.4 million. Matrix had 1987 revenues of around \$8 million.

The French company, Eurequip, was acquired. Eurequip had total 1986 revenues of about FF 91 million. It is a general consultancy company with only 20% of its revenues coming from the IS area.

**1989**

CGI Informatique acquired Production Systemes, France; GEIDE, Spain; and D2S, Italy.

**1990**

CGI Informatique bought the U.S. professional services company SRS Network and the U.S.- and U.K.-based CASE methodology company Yourdon.

**1991**

CGI Informatique acquired the U.K. software company LS3, two CASE product rights (DesignAid II and Source/RE) from U.S.-based Transform Logic, the French CIM software company Interprogram and the French real-time and scientific systems company Decision International.

**Major Projects**

Major projects carried out by CGI in 1991 and 1992 include:

- Eurotunnel (SIGAGIP/Personnel and Finance)
- Lyonnaise des Eaux-Dumez: large "private software package" for subsidiary management, follow-up and billing throughout the world
- France Telecom: network and traffic control project
- Moet & Chandon: European sales network management system

- PTT Telecom (Netherlands): Third-party maintenance
- Mercadona (Spain): automated warehouse management system
- Deutsche Bank (Germany): new regulations system
- Manufacturers Hanover (U.S.): prospect follow-up system
- UAP (France): group insurance system including third-party maintenance and design of the new target system
- Mark Truck (U.S.), SEAT (Spain), PERKINS Engines (U.K.): supply of POPIMS solution
- Elf Sanofi (U.S.), Pisa (Mexico), Moulinex (International): supply of PRODSTAR 2 solution
- Dresdner Bank Luxembourg and BfG Bank Luxembourg SA: supply of PACREVERSE (Reverse Engineering CASE solution)
- Ruhrkohle (Germany): personnel management system
- Supply of CASE solutions to U.S. Air Force, Barclay's Bank (U.K.), Union des Assurances de Paris (UAP France), de Volksverzekering (Belgium), Credito Emiliano (Italy), Bouwfonds Limburgse Gemeenten (Netherlands), Proctor & Gamble (U.S.)
- Supply of SIGAGIP/Personnel Solutions to Banco Commercial Português (Portugal), BMCI (Morocco), Rinascente (Italy), Renault (France), Michelin (France), Société Wallonne des Distributions d'Eau (Belgium)
- Supply of SIGAGIP/Finance Solutions to AMSA (waste management Milan, Italy), Fiat Hitachi (Italy)
- Supply of LS/400 solutions to Caradon Heating (U.K.), Acer Computer Europe, Essilor International, Servicios Talleres Centrales (Spain)
- Supply of TZAR II Solutions to Francaise de Mécanique (France), Tonos-Bechler (Switzerland), Ansaldo Componenti (Italy)

**Key Products and Services**

CGI is one of the leading French consulting and software engineering companies. Products and services offered include:

- Consulting and professional services, the core of CGI's activities, where major software applications are developed in successive stages, ranging from long-term planning to design and maintenance.
- Real-time and scientific professional services throughout the CRA2A and Decision International companies, which implement advanced technologies in the fields of computer-aided software engineering (CASE), system simulation, real-time systems and artificial intelligence for aerospace, space, defence, computer-aided manufacturing and telecommunications industries.
- Computer-aided software engineering (CASE) systems. The CASE line, including PACBASE, PACLAN and PACLAN/X, has become one of the worldwide standards and a recipient of the ICP \$100 million worldwide sales award.
- The SIGAGIP applications series, designed to globally manage human and financial resources and also a recipient of the ICP \$250 million sales award.
- Computer-integrated manufacturing through the Tzar II system (including CIM, purchasing, maintenance, etc.), the PRODSTAR manufacturing control system, and TDMBASE, technical reference and quality control system.
- Distribution control of industrial products and spare parts through POP/MS for IBM mainframes and AS/400s (including manufacturing control and accounting modules).
- Facilities management by CGI-Services, which, in its computing centre, designs solutions, implements them and manages the required resources.
- Management consultancy, through EUREQUIP, with the objective of being able to increase a corporate organisation's ability to control its evolution and efficiency.

**Financial  
Information****Exhibit D****FIVE-YEAR FINANCIAL SUMMARY (FYE 31-8) (FF MILLIONS)**

YEAR	1987/88	1988/89	1989/90	1990/91	1991/92
Revenue	942	1,232	1,518	1,780	2,022
Annual Growth Rate (%)	39	31	23	17	14
Profit before Taxes	138.6	207.1	267.2	256.5	232.9
Annual Growth Rate (%)	75	49	29	(4)	(9)
Profit after Taxes	80.4	121.3	152.0	167.6	145.1
Annual Growth Rate (%)	53	51	25	10	(13)

**Market Analysis****Exhibit E****1991 EUROPEAN MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN INFORMATION SERVICES REVENUES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUE*	PERCENT
Manufacturing (Discrete)	50	19
Manufacturing (Process)	25	9
Banking/Finance	65	24
Insurance	15	6
Distribution (Retail)	5	2
Distribution (Wholesale)	10	4
Transportation	10	4
Utilities	10	4
National Government	25	9
Telecommunications	10	4
Business Services	10	4
Other	35	13
<b>TOTAL</b>	<b>270</b>	<b>100</b>

Note: Includes equipment maintenance revenues

\* INPUT estimates

## Exhibit F

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUE*	PERCENT
France	229	88
U.K.	5	2
Switzerland	8	3
Belgium	3	1
Netherlands	3	1
Spain	13	5
<b>TOTAL (Rounded)</b>	<b>260</b>	<b>100</b>

Note: CGI also operates in Canada and the U.S.

\* INPUT estimates

## Exhibit G

**1991 EUROPEAN MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INPUT SERVICE MODE	REVENUE*	PERCENT
Processing Services	10	4
Applications Software Products	75	28
Systems Software Products	15	6
Professional Services	160	59
Equipment Maintenance	10	4
<b>TOTAL</b>	<b>270</b>	<b>100</b>

\* INPUT estimates

**Company  
Strategies**

CGI Informatique offers a broad range of products and services. Its aim is to continue providing quality solutions that are profitable. CGI is also committed to delivering products on time and within budget.

In Europe, CGI derives most of its revenues from France, but also has subsidiaries in the U.K. (where it acquired methodologies company, Yourdon, in 1990, and software house L3 in 1991), in Switzerland, Belgium, the Netherlands, Spain, Germany and Italy. In addition, CGI operates in the U.S. and Canada.

CGI offers a number of applications software packages covering a wide area of business activities, including finance, human resources, purchasing and sales. Vertically focused products include:

- POPIMS, a parts management system for the automotive industry
- PRODSTAR, a manufacturing control system
- TZAR II, a CIM system

CGI is strongest in the professional services area, which INPUT estimates to account for the bulk of its European revenues, \$160 million in 1991.

The main challenge facing CGI is the same as that facing a number of other leading French software and services vendors, to expand business in Europe, outside of the domestic market.

CGI has subsidiaries in all of the larger IT country markets, but has yet to show any significant revenue contribution from any of these countries, apart from France.



## COMPANY PROFILE

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### **CISI**

Tour Winterthur  
Cedex 18  
92085 Paris La Defense  
France  
Tel: 33 1 49 03 95 00  
Fax: 33 1 49 03 95 95

CEO: Alain Vidart  
Status: CEA and CGS subsidiary  
Number of Employees: 3,093  
Revenue (FYE 31-12-90): FF 1.47 billion

---

### **The Company**

CISI was founded in 1972 by CEA, the French Atomic Energy Authority. In June 1987, Cap Gemini Sogeti (CGS) acquired an interest in the group. CEA now owns 64% and CGS 36%.

CISI operates in the following markets:

- Space/aeronautics
- Telecommunications
- Defence
- Government Agency
- Industry
- Banking and Insurance

The company claims to be the market leader in scientific and technical computer applications and acquired in 1990 a company in Germany specialized on the same market.

According to CISI, it is the French leader in migration and maintenance of computer applications and among the leading companies within facilities management and network engineering services.

# INPUT LIBRARY

## Organisational Structure

CISI has a number of subsidiaries, which are listed in Exhibit A.

### Exhibit A

SUBSIDIARIES		
COMPANY	COUNTRY	% OWNED
CISI Ingenierie	France	100
CISI Telematique	"	"
CISI Transtec	"	"
RISL	U.K.	95
CCS	Spain	89.6
CAM	Germany	60
SFGL	France	21
ESI	"	40
McKeown	U.K.	25
Eurinform	France	10
Logiquel	"	11.2
SAIA	"	14.3
Audimatique	"	20
Eurodim	"	5.64
ISIS	"	6.24
Notarcis	"	10.0
Segif	"	1
Autipac	"	0.4

CISI has four principal areas of activity. Each of the areas is addressed by one of the four major companies within the group: CISI Ingénierie, CISI Télématique, CISI Transtec and CCS.

- Scientific and technical software (CISI Ingénierie).
- Software development and conversion (CISI Transtec).
- Facilities management and network engineering (CISI Télématique).
- Software packages and turnkey systems (CCS in Spain).

CISI operates on most hardware platforms, including:

- IBM, Bull, Digital, IN2, Goupil, Tandem, Sun, Matra, Datasystem, NCR and Unisys.

It uses the following languages:

- Cobol, Pascal, C, ADA, APL, PLI, LISP.



## Recent Acquisitions

CISI acquisitions in 1990 and 1991 are shown below.

In 1990 the group acquired 60% of German software company CAM, which specialises in scientific and technical software for the aerospace industry.

In 1991 CISI acquired Spanish company CEINSA and a 25% holding in McKeown in the U.K. and Ireland. Both companies operate with CCS and focus on the solutions market.

## Key Products and Services

CISI has four main areas of activity.

### Scientific and Technical Software:

CISI Ingénierie is the groups' specialist in scientific and technical software and claims to be the market leader in the nuclear and aerospace industries, sectors which require high simulation-modelling and real-time system skills.

CISI Ingénierie has expertise in:

- Real-time systems
- Scientific computing
- Artificial Intelligence
- Software Engineering.

CISI Ingénierie operates outside of France through its subsidiaries; CAM in Germany, CISI AID in Italy and ScyT in Spain.

### Software Development and Conversion:

CISI Transtec specialises in the development of management software while RISL, the groups U.K.-based software house, specialises in applications for the insurance industry.

Both companies offer the following services:

- Software development
- Technical upgrading
- Software conversions.

Most recently CISI Transtec has moved into the software maintenance market.

### **Facilities Management and Network Engineering:**

CISI Télématique provides all services related to the management and operation of data processing centres and their associated networks. The company employs 675 staff and services offered are:

- Operations management
- Security services
- Network design
- Consultancy & technical support
- Network engineering.

### **Packaged Software**

Headquartered in Barcelona, CCS is responsible for the solutions business of the CISI group. Services offered are:

- Turnkey systems
- Horizontal and vertical applications.

These services are offered outside of Spain through the company's subsidiaries; Cecs in Portugal and McKeown in Ireland and the U.K.

## **Financial Information**

### **Exhibit B**

#### **FIVE YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	1,180	1,108	1,150	1,382	1,475
Annual Growth Rate	-23%	-6%	3.8%	20.2%	6.7
Profit before Taxes	6.0	46.4	64.4	NA	NA
Profit after Taxes	(20.0)	33.94	56.7	67.0	12.0
% Net Profit	—	3.1%	4.9%	4.8%	8%


**Market  
Analysis**
**Exhibit C****1991 MARKET ANALYSIS BY GEOGRAPHIC AREA (FF MILLIONS)**

GEOGRAPHIC AREA	REVENUE	PERCENT
France	915	62
Rest of Europe	560	38
<b>TOTAL</b>	<b>1,475</b>	<b>100</b>

Source: GSI

**Exhibit D****1991 MARKET ANALYSIS BY CISI REPORTED ACTIVITY (FF MILLIONS)**

ACTIVITY	REVENUES	PERCENT
Scientific and technical computing	472	32
Facilities Management and Networks	310	21
Standard Computer Solutions	280	19
Large Management & Administrative Software	413	28
<b>TOTAL</b>	<b>1,475</b>	<b>100</b>

Source: CISI

**Exhibit E****1991 MARKET ANALYSIS BY COUNTRY (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	177	62
Spain	83	29
Rest of Europe	25	9
<b>TOTAL</b>	<b>285</b>	<b>100</b>

\*INPUT estimate of Software &amp; Services revenues.

## Exhibit F

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Network Services	15	5
Systems Operation	55	19
Professional Services	135	47
Software Products	15	5
Turnkey Systems	65	23
<b>TOTAL</b>	<b>285</b>	<b>100</b>

*Percents may not add to 100 due to rounding*

\*INPUT estimate of Software and Service revenues

## Exhibit G

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	68	24
Process Manufacturing	43	15
Utilities	14	5
Telecommunications	28	10
Banking and Finance	23	8
Insurance	6	2
Healthcare	14	5
Education	6	2
Local Government	28	10
National Government	55	19
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>285</b>	<b>100</b>

\*INPUT estimate of Software and Service revenues

 **Company  
Strategies****(a) Company Direction**

CISI's ambition is to continue its expansion in Europe. The company currently has subsidiaries in Germany, Spain, the U.K., Italy, Portugal and Ireland. In 1991, 38% of revenue was achieved outside of France, an increase of 4% over 1990. The company expects this figure to reach 40% in 1992 and 50% soon after.

In France, CISI had a mixed year: satisfactory growth of aerospace activities, significant growth in networks, facilities management and development, yet a very difficult year for defence activities.

Overall, turnover reached FF 1.4 billion, an increase of 67% over 1990. Profitability was down however, to under 1% - well below the company's expected level of 4.8%.

Despite its decrease in profitability CISI is determined to pursue its research and development efforts, to invest in software tools to maintain its skills base and to continue with its external growth.

CISI sees these decisions as essential if the company is to meet market demands long term.

**(b) Conclusions**

In 1992, CISI's priority is to return to the level of profitability achieved in previous years, while continuing growth in Europe.

This will be a challenge to the company in a year where recessionary pressures have not lifted and spending remains cautious. However, the company does have an established presence in Europe and has strategically acquired companies who appear to fit well with its four main subsidiaries.

Certainly, CISI has a good base to grow from and has succeeded so far in achieving a substantial amount of revenue from outside its national market.

CISI does not expect its decrease in profits to impact the growth potential of the group, which has debts of less than FF 55 million and net assets of FF 450 million.



## COMPANY PROFILE

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### CMG (COMPUTER MANAGEMENT GROUP) LTD.

Carrier House  
Warwick Row  
London SW1E 5ER  
United Kingdom  
Tel.: 44 71 630 7833  
Fax: 44 71 630 677

Chairman and Group Director: Douglas Gorman  
Status: Private  
Number of Employees: 1,549  
Revenue (FYE 31-12-91) £102.9 Million

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#### The Company

CMG was founded in 1964 by Douglas Gorman. Since its foundation, the company has become one of the largest independent providers of management consultancy, processing services, software development and business systems in Europe.

CMG now claims to be the largest privately owned independent company of its kind in Europe and has recently announced its intention to see a listing on the London Stock Exchange.

CMG specialises in specific business areas including government, local authorities, public utilities, insurance, banking, building societies, manufacturing, distribution and retail.

#### Organisational Structure

The company currently has 1,610 shareholders who are mainly group employees. The largest shareholder is Mr. Gorman, the founder, who owns 16.04% of the company.

#### KEY EXECUTIVES

Name	Position
Ron J. White	GM/Chairman, U.K.
Fander C. Waalboer	GM/Chairman, Germany
Gerard H. Lucassen	GM/Chairman, Netherlands

CMG operates through 43 companies in the U.K., Germany and the Netherlands. Exhibits A and B list direct and indirect subsidiaries. CMG holds 100% of the issued share capital of all of its subsidiaries.

## Exhibit A

**DIRECT SUBSIDIARIES**

COMPANY	COUNTRY	PERCENT OWNED
CMG Computer Management Group (U.K.) Ltd.	U.K.	100
CMG International Ltd.	U.K.	100
CMG (Computer Management Group) BV	Netherlands	100

## Exhibit B

**INDIRECT SUBSIDIARIES**

<b>Companies: U.K.</b>
CMG Business Services Northern Limited CMG Business Systems Limited CMG Computer Management Group (U.K. Services) Limited CMG Computer Processing Services Limited CMG Consultancy Services London Limited CMG Consultancy Services Northern Limited CMG Information Consultancy Services Limited CMG Information Processing Limited CMG Information Services City of London Limited CMG Information Services for Banks Limited CMG Information Services for Finance Limited CMG Information Services for Public Sector Limited CMG Personnel Systems Limited
<b>Germany:</b>
CMG Deutschland GmbH CMG Frankfurt GmbH CMG Munchen GmbH CMG Sysber GmbH CMG Sysco GmbH

## Exhibit B (Continued)

**Netherlands:**

CMG Group Services BV  
 CMG International BV  
 CMG World Trade BV  
 CMG Nederland BV  
 CMG Amstelveen BV  
 CMG Bedrijfsinformatiesysem BV  
 CMG Computercentrum BV  
 CMG Den Haag BV  
 CMG Den Haag 2 BV  
 CMG Den Haag 3 BV  
 CMG Diensten BV  
 CMG Finance BV  
 CMG Finance 2 BV  
 CMG Informatietechniek BV  
 CMG Informatietechniek 2 BV  
 CMG Informatieverwerking BV  
 CMG Management Consultancy BV  
 CMG Noord-Nederland BV  
 CMG Nutsbedrijven BV  
 CMG Personeelssystemen BV  
 CMG Rotterdam BV  
 CMG Utrecht BV

In December 1991, CMG employed 1,549 staff.

## Exhibit C

**1991 EMPLOYEE ANALYSIS**

EMPLOYEE CATEGORY	NUMBER OF EMPLOYEES
Operating	1,169
Sales and Administration	223
Management	157
<b>TOTAL</b>	<b>1,549</b>

## Major Recent Projects

Examples of recent contracts won by CMG in 1992 are as follows:

- A facilities management contract for BP Petroleum, worth £25 million over the next five years. CMG will assume responsibility for all aspects of BP's share registration system.
- Design, implementation of a share register system for Abbey National (U.K.).
- Development of a new customer invoicing and debt collection system in partnership with two Dutch water boards: the Amstel and Gooiland Water Board and the Limburg Water Authority.
- A contract initially worth £240,000 to provide strategic advice on Chevron U.K. Ltd.'s Multi Field Integration project.
- Installation of a back-office software package for Sun Life Unit Services (U.K.) throughout its branch network and linked to its head office.
- A 2,400-employee payroll processing contract from Bradford & Ilkley Community College. The contract is valued at £100,000 over the next year or years.
- A payroll processing contract for KLM, the Royal Dutch airline, in an overall investment by the airline valued in excess of £1 million.
- The first stage of a five-year £1 million IT upgrade for The Chartered Institute of Management Accountants (U.K.). INFOBASE will form the basis of the system specification.
- A three-year contract with Esso Petroleum to outsource its overnight centralised mainframe printing at the CMG Print Centre at Feltham (U.K.).
- Installation of new payroll processing and management reporting system for travel retailer Lunn Poly Ltd. (U.K.). The contract is worth approximately £250,000 in installation and processing revenue over the next five years.
- Payroll processing contract from Manchester Polytechnic (U.K.). The service will be based on the PAYFACT 2000 system and is valued at £100,000 over three years.

### **Recent Acquisitions**

- During 1989, CMG acquired Mayne Nickless Computer Services Ltd., an organisation providing payroll services in the North of England.
- In February 1990, DORA Computer Services BV in the Netherlands was acquired. The company supplies computerised payroll services together with customer-specified computer software developments for payroll in the Netherlands.
- In March 1990, CMG acquired Quadata BV, another computer services organisation providing payroll and facilities management services in the Netherlands.
- In May 1990, Sysco GmbH and its subsidiary Sysber GmbH were acquired. The companies provide computer consultancy services in the banking and finance sectors.
- In January 1992, CMG formed CMG Munchen GmbH, making it the company's fourth office in Germany. The company will target the industrial and financial sectors.
- In August 1992, CMG acquired German IT consultancy Kernel GmbH, which has forecast revenues for 1992 of some DM 3 million. The company is to be integrated into CMG Munich GmbH.

### **Key Products and Services**

CMG has six principal areas of activity:

- Professional Services
- Software Products
- Processing Services
- Network Services
- Systems Operation
- Systems Integration

## Professional Services

CMG provides consultants for all phases of the project life cycle from management consultancy through systems design and development. The company has developed its own development methodologies, which are:

- **COMMANDER** - an integrated project support environment.
- **ARCHIPEL** - a framework within which strategic business, organisation, information and automation planning can be undertaken.
- **PLOT** - a methodology to assist manufacturing companies to introduce new technology.
- **OFFICER** - used in the implementation of office systems.
- **SQM** - strategy for quality manager.
- **SMS** - strategy for management services.

## Software Products

These include:

- **PAYFACT 2000** - a personnel and payroll package that CMG installed in its Dutch and U.K. processing centres.
- **FACT 2000** - a financial accounting package.
- **SHARE REGISTRATION** - a service to administer all aspects of the share registration business.
- **IMACS** - a London market underwriting and accounting package.
- **Bank of England Reporting Suite** for strategy reporting by banks to the Bank of England.
- **INFOBASE** - information management for charities, associations and membership institutions.

CMG also provides customised solutions. Software packages are often used as base products and are tailored to individual client needs.

**Industry Knowledge:**

CMG targets specific industry sectors, notably:

- **Finance** - CMG's specialist businesses operate in all the major financial centres of the U.K., the Netherlands and Germany. They cover all aspects of banking, insurance, securities and building societies.
- **Public Sector** - targeted clients are national and local government, schools, social security, health care and liabilities. CMG is a leading supplier of geographic information systems, particularly in the Netherlands.
- **Manufacturing, Retail and Distribution** - the company's expertise includes advanced manufacturing aids, warehousing, transportation and freight forwarding.
- **Associations and Charities** - in the U.K., CMG provides packaged systems and consultancy to many of the country's professional and charitable organisations.

**Financial  
Information****Exhibit D****FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	56.8	64.6	85.6	96.2	102.9
Annual Growth Rate (%)	11	14	32	12	7
Profits before Taxes	5.6	5.0	8.6	8.6	9.1
Annual Growth Rate (%)	19	(11)	72	0	6
Profit after Taxes	3.3	3.1	5.1	5.1	5.6
Annual Growth Rate (%)	22	(6)	65	0	10
% Net Profit	5.8	4.8	6.0	5.3	5.4
Earnings per Share	24.00p	22.37p	36.79p	25.38p	39.80p

## Market Analysis

## Exhibit E

1991 MARKET ANALYSIS BY DELIVERY MODE (\$ MILLIONS)

DELIVERY MODE	REVENUE	PERCENT
Professional Products	105	54
Software Products	8	4
Processing Services	41	21
Network Services	10	5
Systems Operation	23	12
Systems Integration	8	4
<b>TOTAL</b>	<b>195</b>	<b>100</b>

\* INPUT estimates

## Exhibit F

1991 MARKET ANALYSIS BY COUNTRY (\$ MILLIONS)

COUNTRY	REVENUE	PERCENT
U.K.	74	38
Netherlands	104	53
Germany	17	9
<b>TOTAL</b>	<b>195</b>	<b>100</b>

## Exhibit G

1991 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)

INDUSTRY SECTOR	REVENUES	PERCENT
Discrete Manufacturing	19	10
Process Manufacturing	6	3
Transportation	6	3
Utilities	6	3
Retail Distribution	6	3
Wholesale Distribution	6	3
Banking and Finance	78	40
Insurance	6	3
Health Care	6	3
Local Government	6	3
Business Services	11	6
Other	39	20
<b>TOTAL</b>	<b>195</b>	<b>100</b>

### Processing Services

CMG has several processing centres in the Netherlands and the U.K. The main activities are payroll processing services. Payroll is an area CMG has concentrated on over many years. Its bureau-based and in-house systems have given CMG a significant share of the European market.

CMG offers value-added network services (VANS), which include:

- **ORDERLINE** - a service designed specifically for importers, suppliers and manufacturers that sell their services through a dealer network. This network gives the opportunity to order directly from a supplier via CMG.
- **CARLINE** - designed for car dealers to order their stock.
- **CMG** also operates, on behalf of Telekurs, an information service providing stock exchange information to clients in the Netherlands.
- **Kluwitel** - a new service available to Wolters Kluwer publishers.
- **Citibank/Diners Club** - a clearing system for Diners Club agents.
- **CMG** handles the yellow pages/home shopping network.

### Systems Operation and Systems Integration

CMG offers the option to manage clients' payroll and general processing systems in-house.

CMG provides a full range of services to facility manage the clients' total system or the software alone.

In 1991, CMG won a number of systems operation contracts, most notably from BP Petroleum, worth £25 million over a five-year period.

**Company Direction**

CMG's objectives are as follows:

- To continue to be an expanding European international organisation.
- To be in the business of providing high-quality professional and processing services to large and medium-sized businesses, government and nonprofit organisations.
- To be major players throughout Europe for facilities management and payroll services. To become major players in the U.K. share registration market, building on the implementation of Taurus and their expertise.
- To remain a high-quality organisation in every respect.
- To specialise in major market sectors and be able to provide a full IT service to these markets, from strategy planning to software delivery, including package selection, bespoke software development, project management and systems integration.
- To retain fundamental policies of equal opportunities, fairness, openness, maximum communication and business ethnics.

**Strengths and Weaknesses:**

CMG's main strength lies in its presence as an established vendor in its main areas of activity. The company is also strong in its knowledge of and expertise in the industry sectors in which it operates.

CMG has a strong reputation as a quality vendor and this is undoubtedly a major strength in a market where quality is highly valued. CMG has enhanced its reputation by receiving BS 5750/ISO 9001, the international certificate of quality assurance.

CMG's main weakness is its lack of European presence outside the U.K., Netherlands and Germany. However, the company now appears to be addressing this weakness and is actively seeking a stock market listing to support its European expansion strategy.

CMG plans to acquire organisations complementary to its existing businesses. CMG feels that the company has reached a point in its development where significant growth, particularly in other countries, would be better achieved with the financial credibility and access to funds that is inherent in obtaining a listing on the London Stock Exchange. The company hopes to have a full listing by 1996.

**Conclusions:**

CMG is a well-established vendor, particularly in the U.K. and Netherlands, with a growing presence in Germany. The company is a market leader in the financial services sector in the U.K. and in its payroll processing activities in the Netherlands.

The company realises that, in the long term, to compete successfully with the growing number of pan-European vendors, it will need to expand outside of its current markets. It has, therefore, announced its intention to seek a stock market quote.

CMG has always prided itself on being a private company with almost 100% of its equity aired by employees. CMG claims that its employees have added motivation to produce top-class work, resulting in a better quality of service than its competitors. The challenge for CMG as a public company will be to retain the cultural components of its structure as a private company, which have made it so successful, and yet open its cultural and management culture to successfully integrate foreign acquisitions.



# INPUT LIBRARY

## COMPANY PROFILE

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### **COMPUNET COMPUTER AG**

Europaring 34-40  
501 Kerpen-Sindorf  
Germany  
Tel: 49 2273 597-0  
Fax: 49 2273 597-130

CEO: Jost Stollmann  
Status: Private  
Number of Employees: 1,060  
Revenue (FYE 30-06-91): DM 626 million

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### **The Company**

Computer AG was founded in 1984 by Jost Stollmann. The company offers services ranging from consulting, account management, systems integration, AS400 and RISC 6000 project management to maintenance and training.

The group consists of the holding company CompuNet Computer AG and has 25 separate branch offices (GmbHs) in 18 locations throughout Germany. CompuNet Computer AG owns 50% to 80% of each GmbH with the remaining share being owned by the local managing director(s).

In 1988, CompuNet Computer entered a joint venture with Computacenter in the U.K. and Random in France to form ICG Paris (International Computer Group). ICG was formed by its members to cater to clients' needs for a pan-European service and to provide a consistency of service throughout Europe from a single interface. ICG now has partners in 16 countries in Europe and is also in Japan. In 1991, ICG was appointed as European Project Associate (EPA) for IBM.

In November 1990, CompuNet acquired the majority shareholding in the Data Service Group, enlarging its product range to include Compaq and Toshiba.

In October 1991, CompuNet moved its headquarters to its new distribution centre in Kerpen.

In October 1992, all Data Service branches were renamed CompuNet, completing the integration of the two companies.

All CompuNet branches are now IBM System Centres, authorised Compaq system resellers, Novell System houses and Lotus Notes value-added resellers

The group currently employs 1,060 staff.

## Organisational Structure

The overall organisation structure of CompuNet showing the company's major divisions is provided in Exhibit A.

Exhibit A

COMPUNET COMPUTER AG	
CompuNet Network Integration (IBM)	Data Service Network Integration (Multi Vendor)
Professional Services	
Central Services	Europe (ICG)

Each division has a number of branch offices; CompuNet Network Integration operates through nine of them, Data Service through eleven and the Professional Services division through four.

## Key Products and Services

CompuNet Computer is principally active in four areas:

- Hardware Integration
- Software Products Dealership
- Professional Services
- Turnkey Systems.

### 1. Hardware Integration

CompuNet acts as an IBM systems centre and is a RISC 6000 and AS/400 agent. The company is also a Toshiba, Compaq, Hewlett-Packard, NEC, and Novell system house.

### 2. Software Products Dealership

CompuNet Computer distributes standard business software products from IBM, Microsoft, Lotus, Aldus, Borland, SPC and Novell.

### 3. Professional Services

The CompuNet Group provides large clients with a value-added, PC-based system integration.

### 4. Turnkey Systems

Software packages and hardware products are provided as total solutions.

## Financial Information

### Exhibit B

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 30-06) (DM MILLIONS)

YEAR	1987/88	1988/89	1989/90	1990/91	1991/92
Revenue (DM Millions)	97.5	175	341	626	685
Annual Growth Rate (%)	172	79	95	84	9
Profit before Tax (DM Millions)	-	-	-	5.3	21.6

100% of revenues are derived in Germany.

## Market Analysis

### Exhibit C

#### 1991 MARKET ANALYSIS BY INDUSTRY SECTOR INFORMATION SERVICES REVENUES

INDUSTRY SECTOR	REVENUE (DM MILLIONS)	PERCENT
Manufacturing	407	65
Banking, Insurance, Services	219	35
<b>TOTAL</b>	<b>626</b>	<b>100</b>

## Exhibit D

**1991 MARKET ANALYSIS BY DELIVERY MODE  
INFORMATION SERVICES REVENUES**

INPUT DELIVERY MODE	REVENUE (DM MILLIONS)	PERCENT
Software Products	120	19
Professional Services	150	24
Turnkey Systems	100	16
Other Equipment Sales and Service	256	41
<b>TOTAL</b>	<b>626</b>	<b>100</b>

### Company Strategies

CompuNet will continue to focus on the desktop services market. The company's goal is to become a "preferred service partner" in the supply of services to large organisations.

Total revenues for the group reached DM 625.7 million in 1991, an increase of 84% over the year. Despite the cost of integrating Data Service into the group, investment in a new distribution centre and a network of operating offices in Eastern Germany, CompuNet earned profits before tax of DM 5.3 million.

1992 revenues increased 9% to DM 685 million with gross profits up an impressive 307% to DM 21.6 million.

The majority of CompuNet's revenue is derived from the manufacturing sector. In 1991, INPUT estimated such revenues amounted to DM 407 millions.

CompuNet as a group did not make any acquisitions in 1991 or 1992, but a number of its shareholders formed a joint venture company with CompuNet's U.K. partner, Computacenter. The new company is called Networx and is based in Paris. Networx has already made an acquisition in the shape of Random, a founding member of ICG.

## COMPANY PROFILE

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### **COMPUTER SCIENCES CORPORATION**

2100 East Grand Avenue  
El Segundo, CA 90245  
(213) 615-0311

William R. Hoover, President and Chairman  
Public Corporation, NYSE, PSE  
Total Employees: 23,000 (6/91)  
Total Revenue, Fiscal Year End  
29/3/92: \$2,113 million

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### **The Company**

Computer Sciences Corporation (CSC), founded in 1959, is the largest independent professional services company in the U.S. Serving government and commercial clients, CSC provides management, consulting in information technology, requirements analysis, software development, systems engineering and integration, turnkey computer-communications systems and systems operations (facilities management) services. The company also provides industry-specific proprietary products and services for credit reporting, claims processing, health maintenance organisations and income tax preparation.

CSC's management has set the objective of becoming one of the top two or three companies in the commercial markets for consulting, systems integration, and related professional services in the U.S. and Europe.

- Its strategies are to maintain its dominant position in the U.S. federal marketplace (which contributed 62% of fiscal 1991 revenue), while expanding its market share in non-federal markets through internal growth and acquisitions.
- To position itself for a leading role in the commercial marketplace, CSC has expanded its consulting and implementation capabilities, established a branch-office structure, begun the transfer of technology gained in large federal system projects to its commercial organisation, and earmarked \$500 million for investment in acquisitions.

**Organisation  
Structure &  
Acquisition****(a) Organisation Structure**

CSC's organisation structure is shown in Exhibit A. The company currently provides its products and services through three operating groups:

- The Systems Group, headquartered in Falls Church (VA), is the company's primary resource for computer and communications technology. The group has five divisions that primarily serve the U.S. government.
- The Consulting Group, headquartered in (MA), is the counterpart of the Systems Group in the commercial marketplace.
- The Industry Services Group, headquartered in El Segundo (CA), serves vertical markets with outsourcing and industry-specific services, principally directed at the insurance, health care, and consumer finance industries.

CSC maintains offices in more than 200 locations throughout the U.S. Operations in the U.K., Belgium, Germany, and the Netherlands are through subsidiary companies.

**Systems Group:**

The Systems Group is the company's primary provider of technical services to the federal government. Services provided include systems engineering and integration, the development of custom-designed computer-based systems and communications systems, operational support of clients' technical activities, clients' computer facilities management, and turnkey system development.

The Systems Group consists of five units:

- The Integrated Systems Division, based in Moorestown (NJ), designs, implements, and integrates systems for office automation, digital imaging, and administrative and engineering support, and for military uses such as weapons control, logistics, wargaming and command, control, and communications (C<sup>3</sup>I).
- The Systems Sciences Division, headquartered in Calvert (MD), provides systems engineering, analysis, software development, and end-to-end integrated data systems and services primarily to aerospace clients such as NASA and the FAA.

- The Network Integration Division (formerly the Network Systems Division), headquartered in Falls Church (VA), provides network and systems integration to both government and industry. Specialising in networks, distributed systems, and network computing, the division provides a range of services, from architecture through operations and maintenance.
- The Systems Engineering Division (formerly the Special Projects Division), headquartered in Falls Church (VA), performs high-level technical management projects, known as systems engineering and technical assistance (SETA), for the government. The division also performs research and development in systems and software technologies, and special activities in signal processing, communications systems, and information processing.
- The Applied Technology Division, headquartered in Falls Church (VA), provides systems operations (facilities management) services, primarily for NASA; provides operations and maintenance services to aircraft and weapons test centres; and provides software development support to federal agencies. This division, CSC'S largest business unit, has about 9,000 employees and \$500 million in annual revenue.

#### Consulting Group:

The Consulting Group provides management consulting, requirements analysis, system design, software development, system engineering and integration, communications systems engineering, and facilities management for non-federal organisations worldwide. These activities are performed by the following units:

- CSC Index, Inc., based in Cambridge (MA), is an international management consulting firm that assists corporations in their operating and financial performance.
- CSC Partners Inc (formerly Computer Partners, Inc.), a wholly owned subsidiary based in Waltham (MA)
- Cleveland Consulting Associates, Inc., based in Cleveland (OH), specialises in logistics and operations management, consulting.
- CSC Europe S.A., headquartered in London, manages CSC Consulting's activities in Belgium, the Netherlands and the U.K. These activities include CSC N.V./S.A. (formerly CIG-Intersys), and CSC Inforem.

CSC Europe:

- CSC's European operations provide consulting, software development, and systems integration services to national and transnational clients, primarily in Belgium, France, Germany, the Netherlands, and the U.K.

In Europe, CSC employs 1,800 personnel.

# COMPUTER SCIENCES CORPORATION

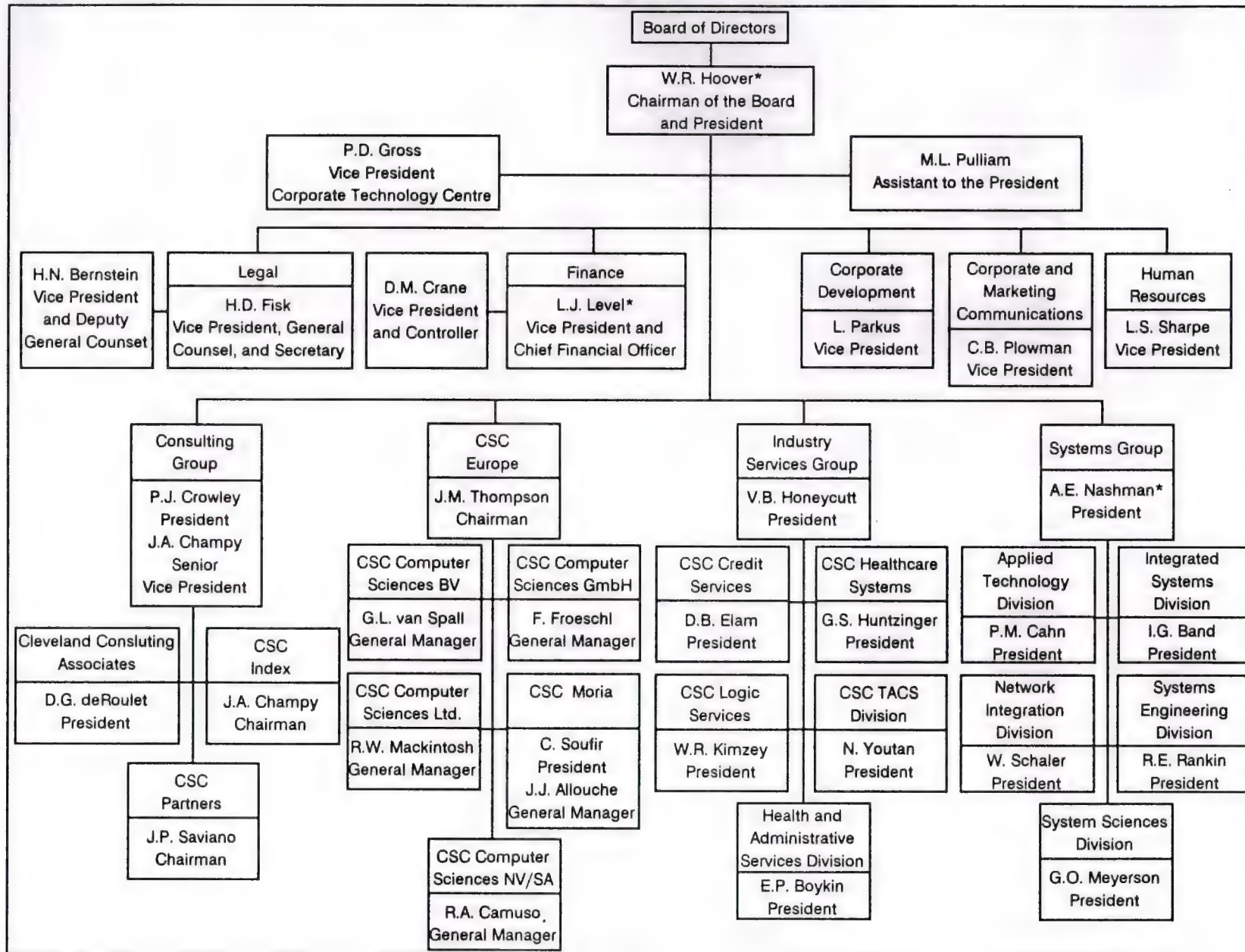


Exhibit A

COMPUTER SCIENCES CORPORATION

INPUT

### Industry Services Group

The activities of this division are discussed under the section on industry capabilities.

CSC has an SI staff of over 3,000 - 2,000 of whom are focused on federal work and more than 1,000 on commercial.

SI resources are distributed across three major organisations consisting of a number of divisions and companies. Federal systems integration activities are the responsibility of Alvin Nashman, Group President, Systems Group. Commercial systems integration activities are now the responsibility of Paul Crowley, President of CSC Consulting, and are carried out in CSC Partners, Index Group, and Cleveland Consulting. The third organisation, headed by John Thompson, has responsibility for developing CSC's European presence.

Exhibit B is an estimate of how the SI personnel are distributed among functional activities. There is a strong professional services content, with 85% of the resources allocated to project management, systems development and implementation, hardware and software evaluation, and acquisition and hardware engineering.

### Exhibit B

**CSC DISTRIBUTION OF SI PERSONNEL**

CAPABILITY	PERCENT
Management, strategy & planning	5
Legal support/contract administration	5
Project Management	15
System development/implementation	50
Hardware/software evaluation/acquisition	15
Hardware engineering	5
Sales	5

CSC has a similar organisational philosophy for both federal and commercial SI activities. As indicated in Exhibit C, most implementation activities are decentralised, through marketing and promotion are done centrally. Strategy and long-range planning are a joint activity with both line and headquarters participation. Account management and sales are performed centrally for federal SI and are both centralised and decentralised for commercial SI.

## Exhibit C

## CENTRALISATIONS/DECENTRALISATION OF SI BUSINESS FUNCTIONS

RESPONSIBILITIES	COMMERCIAL	FEDERAL
Strategy and long-range planning	B	B
Marketing and promotion	C	C
Contract review/approval	B	C
Account management/sales	D	D
Project management/control	D	D
Implementation/development	D	D
Hardware/software acquisition	D	D
Systems operations	D	D

(C=Centralised, D=Decentralised, B=Both)

As of June 1991, CSC had approximately 23,000 employees, segmented as follows:

Systems Group	67%
Industry Services Group	17%
CSC Consulting	15%
Other	<u>1%</u>
	100%

## (b) Acquisitions

Acquisitions made by CSC during 1991 include the following:

- In October 1991, CSC completed the acquisition of Intelicom Solutions Corporation (formerly Telic Corporation) of Bethesda (MD). Terms of the cash purchase were not disclosed.
- Intelicom, with annual revenues of approximately \$30 million, is the largest independent provider of software to the telecommunications industry in the U.S. Its customer base includes AT&T, GTE, and the seven regional Bell operating companies.
- Intelicom will operate as a business unit of the Consulting Group.

- In July 1991, CSC acquired CompuSource of North Carolina. Terms of the purchase were not disclosed.
  - CompuSource, with annual revenues of \$20 million, provides systems operations and processing services to over 300 clients, including commercial insurance and financial services firms.
  - CompuSource operates through Research Triangle Time Sharing Corporation and Provident Recovery Systems Inc. and maintains data centres in North Carolina, Massachusetts, Pennsylvania, and Ohio.
  - CompuSource now operates as part of the Health and Administrative Services Division within the Industry Services Groups.
- In May 1991, CSC acquired Butler Cox, a London-based information technology management consulting firm with annual revenues of approximately \$18 million.
  - CSC agreed to purchase all of the firm's shares (approximately 5.3 million shares outstanding) through a public tender offer at a per-share price of 2.45 British pounds (approximately \$4.21).
  - The operations of Butler Cox have been merged into CSC Index.
- In January 1991, CSC (through Cleveland Consulting Associates) acquired Paragon Consulting Group, a Dallas-based firm specialising in operations management consulting services to food and consumer products manufacturers.
  - Paragon, with annual revenue of \$1.5 million in 1990, has performed projects for such clients as Frito-Lay, Coca-Cola, Pizza Hut, and Taylor Instruments.
  - The operations of Paragon have been merged into Cleveland Consulting Associates.
- In January 1991, CSC acquired Moria Informatique, a Paris-based systems integration and software firm.
  - Moria, with over 400 employees and 1990 revenue of about \$38 million (U.S.), provides software and services to large companies in manufacturing, banking, insurance, transportation, and telecommunications. The firm also provides micro and minicomputer-based information systems targeted to manufacturers of clothing, fashion products, and shoes.

- Moria now operates as CSC Moria.
- In January 1991, CSC acquired Analytics Inc., a private firm specialising in information security and communications systems.
  - Analytics, with 350 employees and 1990 revenue of \$28 million, has offices in Northern Virginia, Columbia (MD), Fort Monmouth (NJ), and Willow Grove (PA).
  - Analytics has been merged into CSC's Systems Engineering Division.

During fiscal 1990, CSC invested \$77 million in the acquisition of six companies:

- In February 1990, CSC acquired Logic, Inc., a provider of systems operations, processing, and application software related to the administration of insurance for loans, mortgages, collateral, and warranties to insurance companies and financial institutions.
  - Logic, headquartered in Dallas, had approximately 250 employees at the time of acquisition and revenues of about \$17 million for the year ending November 30, 1989.
  - Logic now operates within CSC's Industry Service Group.
- In November 1989, CSC acquired Cleveland Consulting Associates Inc., a wholly owned subsidiary of Saatchi & Saatchi PLC providing logistics and operations management consulting services worldwide.
  - Cleveland Consulting, headquartered in Cleveland (OH), had approximately 130 employees at the time of the acquisition and annualised revenues of \$13 million.
  - The company now operates as a subsidiary of CSC within CSC Consulting.
- In November 1989, CSC also acquired LPS Inc., a Minneapolis-based professional services firm specialising in system development services for commercial clients.
  - LPS had approximately 140 employees at the time of the acquisition and annualised revenues of about \$9 million.
  - The operations of LPS have been merged into the CSC Partners unit within CSC Consulting.

- In November 1989, CSC acquired the remaining 19% interest in Inforem Limited, a British consulting firm with clients in the financial services, retail, and leisure industries.
  - Inforem, based in London, had annualised revenues of about \$20 million.
  - The operations of Inforem have been merged into CSC's European operations.
- In June 1989, CSC completed the acquisition of CIG-Intersys Group and its subsidiaries from Societe Generale de Belgique, S.A. and Generale de Banque, S.A. Terms of the cash transaction were not disclosed.
  - Based in Brussels, CIG is the largest information services company in Belgium, with 1988 revenues of approximately \$85 million, exclusive of an electronic banking network service not included in the acquisition. CIG also operates in France and the Netherlands, and holds minority ownerships of firms in Argentina and West Germany.
  - CIG, with approximately 1,000 employees at the time of the acquisition, provides consulting, systems integration, software, computer facilities management, and related services. Its major markets include the banking, insurance, transportation, and distribution industries.
  - The acquisition strengthens CSC's European market position and adds specific European vertical market knowledge.
  - CIG's operations have been merged into CSC's Belgian operations, now known as CSC N.V./S.A.
- In April 1989, CSC acquired Seako, Inc. of Birmingham (AL). Terms of the acquisition were not disclosed.
  - Seako specialises in IBM-based software products for medical groups, managed health care organisations and private practices and is a value-added reseller of IBM equipment.
  - Seako had annual revenues of approximately \$7 million.
  - Effective October 1, 1990, the operations of Seako have been merged with CSC Comtec to form CSC Healthcare Systems, a division within CSC's Industry Services Group.

In January 1990, CSC sold its remaining 30% interest in INFONET to MCI Communications Corp. and nine other organisations for \$41 million. Established in 1970, INFONET operates a worldwide communications network, providing computer and communications services to commercial companies and government agencies.

Other significant acquisitions in recent years include:

In July 1986, CSC acquired Computer Partners (revenues of approximately \$15 million), a professional services firm with offices in the northeast corridor of the U.S. Computer Partners, now known as CSC Partners, has vertical market expertise in manufacturing, distribution, finance, insurance, utilities, and state and local government.

In October 1988, CSC acquired Index Group, Inc. (\$30 million in annual revenues), a leading consulting firm to major U.S. and European companies specialising in the strategic use and management of information technology. This acquisition added a strong senior commercial consulting capability to CSC's strong systems integration credentials.

### Recent Major Projects

Some examples of systems integration projects carried out by CSC are detailed in Exhibit D.

### Exhibit D

#### EXAMPLES OF CSC'S CUSTOMERS & CONTRACTS

Company/Industry	Project Description
Dade County Airport	Automated Cargo Information System
U.S. Air Force	Stock Control and Distribution
Cincinnati Gas and Electric	Customer Services System
AT&T	Trunk Inventory and Control System
U.S. Treasury Department	Consolidated Data Network
Kennedy Space Centre	Office Automation System
Weirton Steel	Manufacturing Information System
Massachusetts Water Resources Authority	Capital Projects Information System

CSC's major project activity includes:

### **Systems Group**

- In September 1991, CSC received a five-year, \$68 million contract from the Defence Information Systems Agency to maintain and operate systems that support the command and control of military forces worldwide.
- In September 1991, CSC received a three-year contract from the Resolution Trust Corporation (RTC) to provide financial management services to thrift institutions that RTC is managing in the western U.S.
- In July 1991, CSC was awarded a subcontract from AT&T to perform a range of support and integration services for all U.S. Treasury organisations on a nationwide basis. CSC's revenues from the seven-year contract are expected to be approximately \$140 million.
- In June 1991, CSC was awarded a five-year, \$180 million contract (including options) to provide the Air Force Systems Command with management information systems and technical support for communications, computer system development, implementation and operations at 14 sites throughout the U.S.
- In December 1990, CSC was awarded a \$120 million contract by the General Services Administration (GSA) for system development and software support services for business applications in the GSA's Pacific Zone. In August 1990, GSA selected CSC to provide similar services for scientific and engineering applications under a contract valued at \$48 million.
- In October 1990, CSC won a recompet and significant expansion of work performed since 1977 from the Environmental Protection Agency (EPA) under a five-year contract valued at \$347 million. CSC (with staff of over 1,600) provides a range of data processing, telecommunications, office automation, record management, data analysis, and development services for EPA's headquarters, 10 regional offices, 14 laboratories, and National Computer Centre.
- In September 1990, CSC was awarded a three-year, \$70 million contract by the Army Communications and Electronics Command (Fort Monmouth, NJ) to provide research and development support for command, control, and communications systems. Study areas include distributed processing, artificial intelligence, network performance, and simulation.

- In August 1990, CSC was awarded a three-year, \$18.7 million contract from the Defence Mapping Agency to supply an integrated, worldwide map distribution system that will perform inventory control, order processing, warehouse and transportation management, and customer and product usage analysis.
- In August 1990, CSC won a \$31.9 million expansion contract of work under a seven-year \$100 million, 1988 contract to supply an integrated command and control information processing system to serve the worldwide facilities of the USAF Military Airlift Command.
- In May 1990, CSC was awarded a three-year, \$14.3 million contract by the Naval Ocean Systems Centre (San Diego) to provide technical services supporting the centre's general purpose computing centre, computer resources centre, and generalised communications.

CSC is a member of the AT&T team selected in December 1988 to replace the federal government's current telecommunications system. Known as FTS2000, the program provides government agencies with an integrated system for voice, data, and video services. CSC is providing a billing system and other software services for FTS2000. Both CSC's Systems Group and Partners unit are engaged in the FTS2000 program.

- Dade County Airport - As prime contractor, CSC has been responsible for the automated cargo information system for the airport and seaport of Miami, Florida. Responsibilities include design, implementation, integration, and facility management of the system, including software, communications equipment, and user procedures. The system connects 20 airlines, 15 brokers/forwarders, and the required federal agencies.
- U.S. Air Force - As prime contractor, CSC is providing systems integration services for the Air Force's new Stock Control and Distribution system. CSC's deliverables include the teleprocessing to support transportation and depot processing, retail and maintenance operations, inventory control points, and depot management.
- Kennedy Space Centre - CSC is the prime contractor responsible for NASA/KSC's office automation system. This system supports all secretarial, professional, and management staffing at KSC.
- Weirton Steel - This five-year project, called IMIS (Integrated Manufacturing Information System), is focused on providing superior customer service through improved inventory control and scheduling and other state-of-the-art manufacturing techniques.

- Massachusetts Water Resources Authority - This project involves the implementation of a major information system to monitor and control the progress of the large capital projects that the Authority will be implementing over the next several years to improve water and sewer systems in 60 communities.

### **CSC Europe**

- Management of all computer services for the Mersey Regional Health Authority in England under a \$16.2 million facilities management contract.
- The design and development of a new generation of customer-based applications supporting the lending, insurance and brokerage operations of the Bradford & Bingley Building Society (U.K.).
- The development and integration of a global reservation system for a major travel and leisure company headquartered in Paris.
- An inventory control system for a German transport company.
- Development of an information technology strategy for a major insurance company in the U.K., including follow-on work for its international operations.
- The development of banking systems for the Belgian branch of a large Asian bank, which follows similar development work for the bank's Dutch branch.
- CSC's German subsidiary is ensuring JIT delivery of materials by steel suppliers to automobile manufacturers by interconnecting their computer systems with those of the German Railways. CSC had previously directed the development of the railway's own freight management systems. CSC also has contracts with Austrian railways and for gateways for Spanish rail and major shipping companies in Spain and Italy.
- CSC is supplying technical management of the computerisation of Britain's income tax withholding system. Estimated to cost over \$340 million, the project involves the records of 27 million taxpayers and 18,000 terminals linked by an X.25 packet switch network to 11 processing centres. CSC is a leading team of government and contractor personnel in hardware procurement, system development and implementation.

- Other activities include:
  - A national system for patents and trademark registration in the U.K.
  - On-going support of a command and control system for the German navy's northern maritime headquarters.
  - The modernisation of administrative systems for government agencies in Belgium and the Netherlands.

### Industry Services Group

- In August 1991, CSC was selected by the California Department of Insurance to design and operate systems and provide full administrative support for the state's Residential Earthquake Recovery Fund. The five-and-a-half year outsourcing contract is valued at \$66.3 million.
- In June 1991, CSC was awarded a \$149 million contract with the New York State Department of Social Services to act as fiscal agent for the state's Medicaid program. The contract continues work the company has performed since 1986.
- the division also processes medical claims from coal miners for the U.S. Department of Labour's black-lung programme (a four-year contract was awarded to CSC in June 1989), acts as servicing agent for the Federal Emergency Management Agency's (FEMA) National Flood Insurance Programme, and is automobile insurance servicing carrier for the New Jersey Market Transition Facility (MTF).

In September 1991, CSC and General Dynamics Corporation formed a 10-year agreement under which CSC will provide systems operations services to General Dynamics' aerospace and defence units.

- CSC will pay General Dynamics approximately \$200 million for facilities, equipment, software, and services.

### Communications Industry

CSC expanded its 23-year partnership with AT&T in fiscal 1991 with a broad spectrum of new services. In the area of high-level consulting, the company is helping AT&T re-engineer the methods used to fill service orders for clients to improve quality, speed service and reduce costs.

The Company is also supporting a major long-distance carrier, U.S. Sprint, by developing a system that speeds response time for service requests from individual consumers and businesses. Replacing manual methods, the system automatically tracks and assigns routing services.

#### Financial Services

CSC mapped plans to help a leading Midwest lending firm revamp its mainframe-driven, centralised system, which supported its heavy transaction-based business in the 80s. The company's new focus on financing corporate acquisitions and restructuring prompted CSC to devise plans for a decentralised, distributed system that puts more computing power in the hands of users.

#### Health Care

A major West Coast provider of health insurance services is drawing on CSC's systems software expertise to speed the handling of claims for 250,000 members who submit an average of 100,000 claims per month. As health care providers continue to offer a broader variety of services with more intricate fee structures, CSC's systems offer advanced decision-making features that help providers better manage their complex point-of-service benefits programmes.

The Company is also supporting a California-based physician's group of several hundred doctors who provide prepaid health care services. CSC's system helps them manage the unique demands of a fixed-fee business by providing automated controls for each phase of their operation - everything from setting appointments to tracking payments, approving claims and analysing data on patient life expectancy. By automating each step of the business, CSC helps doctors downplay risk and maximise profits, while also improving the quality of care.

#### Insurance

The Company was chosen to extend its role as fiscal agent for New York's Medicaid programme through 1996 under a contract that could exceed \$150 million if the state exercises its options for two one-year renewals. Serving the largest Medicaid programme in the nation, CSC processes approximately \$13 billion annually in Medicaid claims from physicians, hospitals, clinics and other health care providers. The Company has been serving as fiscal agent for the programme since 1986.

North American Life Insurance Company - known for its innovative methods of doing business - engaged the Company in fiscal 1991 to customise a CSC system that is helping it stay competitive by handling its unique, high-volume and paper-intensive processing requirements. CSC's systems and applications expertise is allowing the company to focus on what they do best: providing the fastest, most cost-effective services to their clients.

### Manufacturing and Distribution

A major steel manufacturer, Republic Engineered Steels, was struggling to reduce the amount of metal lost as scrap in the manufacturing process. CSC introduced a technology-driven decision-making tool in fiscal 1991 that uses proven mathematical principles to determine how each bar of steel can best be cut to fill customer orders. The results, which are lowering production costs and speeding the manufacturing cycle, are saving Republic millions of dollars a year.

One of the world's leading computer manufacturers, Hewlett-Packard, was seeking to improve the efficiency of its repair parts operation, which stocks some 125,000 spare parts and serves the whole company. Traditionally, Hewlett-Packard had prided itself on its success in rapidly delivering spare parts. But as users shifted from mainframes to PCs, service orders and inventories skyrocketed. The company turned to CSC to develop a new logistics strategy that is currently cutting costs and improving the availability of parts by streamlining the ordering and delivery process and improving methods of tracking inventory.

### Retailing

The world's largest retailer of eyeglasses and contact lenses - with 1,000 company-owned stores and franchises in the U.S. alone - enlisted CSC in fiscal 1991 to revamp its distribution system, which no longer supported the retailer's ambitious growth and service goals. CSC developed a new distribution strategy - spanning warehousing, order processing, inventory management and purchasing - and is currently working with the retailer to build, integrate and install this broad-based solution.

An East Coast chain of convenience stores, Wawa Food Stores Inc., was considering changing its traditional product mix to reflect a changing customer base. With help from CSC, Wawa gained insights into the logistics strategy required to support such a change and to purchase and distribute goods at the lowest possible cost.

## Utilities

A major gas and electric utility engaged CSC in fiscal 1991 to design and build a new customer information system to help meet its changing business goals. CSC began by building a temporary upgrade for the existing system to handle account management, meter orders and service orders. These features, in turn, were also incorporated into the new system. As a result, users easily adapted to the new system, which CSC designed to be quickly constructed and installed.

## Key Products & Services

### (i) Technologies

A key focus in 1991 was CSC's strong initiative to promote higher standards of quality and productivity in all sectors of its federal activities. As a leader in developing Total Quality Management (TQM) programmes for the Navy and NASA, CSC is also aggressively seeking ways to measure and encourage quality improvement and make systems more reliable under its own TQM program that serves all federal clients.

During fiscal 1991, the Company also continued to apply new technologies in the federal sector that can be a seed-bed for opportunities commercially. For example, CSC was awarded a subcontract with IBM to build and link 2,000 local area networks as part of a nationwide system that will serve all the federal government's courthouses. This effort will significantly expand the company's position in network integration technology.

The designation of NASA Ames Research Centre's supercomputing facility, which CSC operates as a priority project under the President's Technology Initiative, gives CSC significant experience in supercomputing and high performance computing systems.

Document imaging is another key technology for CSC - in this case with the award of an Army contract. CSC was chosen as one of two finalists from an original field of eight competing for an Army Computer-Aided Acquisition and Logistics Support contract that seeks state-of-the-art solutions to replacing cumbersome paper manuals and drawings with digital files that will cut the time and cost of acquiring and maintaining weapons systems.

The Company also strengthened its own internal efforts to expand technology research and apply breakthroughs in today's federal marketplace to the commercial sector. Four new "Centres of Excellence" - focusing on geographic information systems; artificial intelligence; document imaging systems; and space, earth and life sciences - were added to the company's existing centres in logistics and training systems.

Data centres operated by CSC include the following:

- CSC Credit Services' data centre in Houston uses IBM 4381, DEC VAX 8650, and DEC VAX-II/785 systems.
- The Health and Administrative Services Division has an Amdahl 5870 installed in Lanham (MD) for claims processing and related insurance functions.
- CSC TACS has an IBM 4081 installed in Los Angeles.
- CSC Logic, Inc. has an IBM 3090-200E, MVS/ESA, installed in Dallas.
- In support of its research and development efforts in software engineering, supercomputing, and other fields, CSC's Systems Group at Falls Church (VA) operates several laboratories which evaluate equipment lent by manufacturers. Company-owned equipment at this location includes a Relational 1000 and a DEC Micro VAX II.

(ii) Industry Knowledge

In the U.S., CSC is focused on applying leading-edge technologies to the commercial marketplace in seven vertical industries: communications industry, financial services, health care, insurance, manufacturing and distribution, retailing and utilities.

As shown in Exhibit D, the bulk of CSC's revenues are derived from Federal Government.

Examples of projects within each of these sectors are provided in Appendix A.

The Industry Services Group serves vertical markets with outsourcing and industry-specific services, principally directed at the insurance, health care, and consumer finance industries through the following divisions:

The Health and Administrative Services Division provides large-scale medical claims processing and related services for state and federal agencies.

CSC Logic, Inc., acquired in February 1990, provides systems operations, processing services, and application software products for the administration of life and disability insurance for credit loans and mortgages, collateral protection insurance, and insurance for automobile manufacturers' warranties.

- The majority of CSC Logic's business is from full administration (systems operations) services, followed by processing services and software licensing. CSC Logic's CALS-II software is available for IBM and compatible mainframes and microcomputers and through CSC Logic's data centre in Dallas.
- CSC Logic currently has approximately 100 clients, including insurance companies, financial institutions, and financial subsidiaries of automobile manufacturers.

CSC Healthcare Systems, Inc. provides turnkey systems, application software, and associated support services to managed health care companies.

- ComCare is a Prime-based turnkey system for health maintenance organizations, preferred provider organizations, third-party administrators, and traditional indemnity carriers. ComCare includes modules for membership and billing, claims processing, utilization review, finance and accounting, and ancillary clinical functions. There are over 200 systems installed in 30 states.
- The division also provides IBM AS/400 and 3090-based application software and turnkey systems for medical groups, managed health care organisations, and private practices nationwide.
  - The products support various medical office functions, including utilisation management, benefits coordination, claims adjudication, premium and fee-for-service billing, membership, and general financial functions.
  - The products are installed in over 800 physicians' offices and at more than 60 health maintenance organisations (HMOs).

CSC Credit Services generated an estimated \$120 million in revenue during fiscal 1991, compared to \$115 million in revenue during fiscal 1990.

- As a result of an agreement formed with Equifax during 1988, credit reporting processing is furnished through Equifax's credit operations.
  - CSC has converted its more than 110 million consumer credit files to Equifax's computer system to create a joint national consumer credit file from which both companies can sell reports from each other's files to credit grantors, with Equifax performing the processing. This joint credit file provides nationwide credit grantors with a single source of credit information, instead of having to deal with multiple sources on a local or regional basis.

- CSC Credit Services continues to own its credit files and receives all revenues from the sale of the credit information they contain. CSC pays Equifax a processing fee for each report supplied to a credit grantor.
- CSC continues to own and operate 31 credit bureaus. CSC Credit Services also owns 31 collection agencies and provides all processing services for the collection agencies.

CSC TACS Division provides income tax return processing services to professional tax preparers located in 15 western and midwestern states.

- Services are provided on a batch basis from a data centre in Los Angeles with direct access available via communications links.

CSC has expertise in tax, credit, health and insurance processing through its processing services offerings. CSC Partners (formerly Computer Partners) provides vertical market expertise primarily in manufacturing, distribution, finance, insurance, retail, publishing, utilities and state and local government. Cleveland Consulting adds depth in consulting in logistics and operations management. CIG-Intersys provides European experience in retail banking as well as in the other vertical industry markets in which CSC claims strength. The company is leveraging this experience by focusing its systems integration activities on the vertical industries identified in Exhibit E.

#### Exhibit E

##### SI MARKET FOCUS - CSC

Vertical Industry
Federal government
State and local government
Distribution
Retail
Finance
Insurance
Telecommunications providers
Publishing
Manufacturing

**Financial  
Information**

Exhibit F provides CSC's five-year financial summary and the company's key financial ratios are given in Exhibit F.

**Exhibit F**

**FIVE-YEAR FINANCIAL SUMMARY FOR COMPUTER-SCIENCES CORPORATION  
(FYE END MARCH) (\$ MILLIONS)**

YEAR	1988	1989	1990	1991	1992
Revenues	1,152.4	1,304.4	1,500.4	1,737.8	2,113
Annual Growth Rate (%)	12	13	15	16	22
Profit after tax	43.5	52.5	65.5	65.0	68.2
Annual Growth Rate (%)	35	21	25	(1)	5
Earnings per share (\$)	2.73	3.28	4.07	4.02	4.12
Annual Growth Rate (%)	31	20	24	(1)	2

Revenue increases for fiscal 1991 were broadly based across all three of CSC's major operating groups. Internal growth from existing operations provided nearly 70% of the revenue increase, while newly acquired operations provided the remainder.

**Exhibit G****KEY FINANCIAL RATIOS**

YEAR	1989	1990	1991
Revenue per employee (\$000's)	-	71.4	75.6
Profit per employee (\$000's)	-	4.6	4.6
Return on sales (%)	6.7	6.4	6.1
Return on capital employed (%)	-	16.5	16.4

**Market  
Information**

Exhibit H provides a three-year summary of source of revenue by operating group.

**Exhibit H**

**CSC SOURCES OF REVENUE  
(\$ MILLIONS)**

ITEM	FISCAL YEAR		
	3/29/91	3/30/90	3/31/89
<b>Systems Group</b>			
- Federal government	\$1,029.9	\$952.5	\$863.9
- Commercial	12.2	12.5	9.6
- State & local government	0.6	0.7	3.9
- International	<u>3.3</u>	<u>0.5</u>	<u>3.7</u>
Subtotal	\$1,046.0	\$966.2	\$681.1
<b>Consulting Group</b>			
- Federal government	\$9.8	\$9.9	\$2.4
- Commercial	151.4	108.6	80.9
- State & local government	8.7	10.7	1.8
- International	<u>201.0</u>	<u>146.8</u>	<u>58.7</u>
Subtotal	\$370.9	\$276.0	\$143.8
<b>Industry Services</b>			
- Federal government	\$30.3	\$30.4	\$29.9
- Commercial	259.4	196.7	144.1
- State & local government	<u>31.2</u>	<u>31.1</u>	<u>31.3</u>
Subtotal	\$320.9	\$258.2	\$205.3
<b>Operations sold (a)</b>			
- Federal government	-	-	\$25.2
- Commercial	-	-	32.9
- State & local government	-	-	0.1
- International	-	-	<u>16.0</u>
Subtotal	-	-	\$74.2
<b>TOTAL REVENUE</b>	<b>\$1,737.8</b>	<b>\$1,500.4</b>	<b>\$1,304.4</b>

(a) Includes the results of CSC Compufact, which was sold in March 1989, and the results of INFONET through the first three quarters of fiscal 1989.

The Systems Group's fiscal 1991 revenue increased \$80 million, or 8%, over fiscal 1990 levels, due principally to a substantial increase in federal contract awards. During fiscal 1991, the Systems Group won federal contract orders of \$1.25 billion, more than twice the federal order volume of the prior year. The group contributed 60% of CSC's total revenue.

The Consulting Group contributed 21% to total fiscal 1991 revenue and reported the largest gains during the year. Revenue for the group rose \$95 million, or 34%.

- European consulting revenues climbed 36% over the prior year, while U.S. revenue climbed 31%.
- Newly acquired operations provided approximately two-thirds of fiscal 1991's European growth and approximately 40% of the U.S. growth.

The Industry Services Group's fiscal revenue increased \$63 million, or 24% over fiscal 1990.

- Nearly three-quarters of the increase reflects continued expansion of services provided to the health care and insurance industries. This trend is expected to slow in fiscal 1992.
- The remainder of the fiscal 1991 increase primarily relates to the acquisition of Logic, Inc., which was first consolidated in the fourth quarter of fiscal 1990.

Exhibits I to J provide breakdowns of CSC's worldwide revenues by industry sectors, business service, INPUT delivery mode, and geographic region.

#### Exhibit I

**CSC : REVENUES BY INDUSTRY SECTOR**

SECTOR	REVENUES (\$ MILLIONS)	PERCENT
Federal Government	1,070	62
- Department of Defence	562	33
- NASA	250	14
- Civil Agencies	258	15
Manufacturing/Distribution	153	9
Banking/Finance/Insurance	240	14
Other	275	15
<b>TOTAL</b>	<b>1,738</b>	<b>100</b>

## Exhibit J

## CSC : REVENUES BY BUSINESS SERVICE

BUSINESS SERVICE	REVENUES (\$ MILLIONS)	PERCENT
Management Consulting	42	2
Systems Integration	509	29
Professional Services	505	29
Turnkey	52	3
Systems Operations	469	27
Processing Services	161	10
<b>TOTAL</b>	<b>1,738</b>	<b>100</b>

## Exhibit K

PRODUCT/SERVICE	REVENUE (\$ MILLIONS)	PERCENT OF TOTAL
Professional services (a)	\$547	32%
Systems integration (b)	509	29%
Systems Operation	469	27%
Processing/network services	161	9%
Turnkey Systems	52	3%
<b>TOTAL</b>	<b>\$1,738</b>	<b>100%</b>

(a) Includes \$42 million in management consulting revenue

(b) Includes \$10 million in application software revenue.

## Exhibit L

ITEM	FISCAL YEAR					
	3/29/91		3/30/90		3/31/89	
	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Revenue						
- U.S.	\$1,536.8	88%	\$1,353.6	90%	\$1,226.0	94%
- International	<u>201.0</u>	12%	<u>146.8</u>	10%	<u>78.4</u>	6%
	\$1,737.8	100%	\$1,500.4	100%	\$1,304.4	100%
Operating income						
- U.S.	\$123.4	95%	\$114.6	98%	\$105.1	98%
- International	<u>6.6</u>	5%	<u>2.3</u>	2%	<u>2.2</u>	2%
	\$130.0	100%	\$116.9	100%	\$107.3	100%

Exhibits M and N provide breakdowns of CSC's European revenues for calendar 1990 by country and delivery mode.

## Exhibit M

BREAKDOWN BY COUNTRY, 1990  
CSC, EUROPE

COUNTRY	REVENUES (\$ MILLIONS)	PERCENT
Belgium	108	54
Netherlands	14	7
United Kingdom	58	29
Germany	20	10

## Exhibit N

BREAKDOWN BY DELIVERY MODE, 1990  
CSC, EUROPE

DELIVERY MODE	REVENUES (\$ MILLIONS)	PERCENT
Processing Services	25	12
Software Products	4	2
Professional Services	93	47
Systems Integration	10	5
Turnkey Systems	30	15
Systems Operations	38	19
<b>TOTAL</b>	<b>200</b>	<b>100</b>

Strategic  
Analysis (SI)

## (a) Company Direction

During fiscal 1991 CSC focused on two fundamental goals: augmenting the company's presence in the commercial marketplace, and continuing to build on CSC's position in the federal sector as one of the leading suppliers of information systems and services to the United States Government.

CSC's goal in the federal sector is to maintain a leadership role in all areas that support the information systems needs of the federal government, including systems engineering and architecture, software development, systems integration and technical services.

CSC's goal in the commercial sector is to be one of the industry's top three professional services firms, providing the full range of skills needed to produce strategic business results. Services include consulting on the strategic use of information; system design and development; systems integration and management; and facilities management and systems operations.

CSC believes that the application of leading edge technologies is critical to its future success in both the federal and commercial markets.

With geographic expansion a continuing goal, CSC opened three new commercial offices in 1991. The company's systems consulting and development practice expanded into Dallas, and its strategic consulting practice opened new offices in Chicago and San Francisco.

CSC also continues to expand via acquisition.

In 1991, CSC expanded its capabilities and coverage commercially with the acquisition of Moria Informatique, a major software development and systems integration firm based in Paris, and Paragon Consulting a Dallas-based consultant to food, consumer and industrial products manufacturers. On May 13, 1991, CSC announced plans to acquire Butler Cox, a leading consultancy in information technology management in the United Kingdom.

In the federal sector, CSC acquired Analytics Inc. Analytics provides services in areas such as logistics, communications and information security, principally to the intelligence community where CSC has numerous clients.

CSC is clearly focused on systems integration as a means of changing its revenue and profit mix. CSC's primary objectives for SI are revenue and profit growth, particularly in commercial SI. Commercial SI expansion will be driven by corporate business objectives that include 40% of revenues and 50% of profits being derived from the commercial business. CSC recognises that industry is looking for business and information consulting and business solutions, and has established a primary objective of responding to these customer demands. Secondary SI objectives are control and expansion of its account base, and developing a follow-on facilities management business.

CSC's commercial systems integration strategy is now focused in CSC Consulting and CSC Europe, as indicated in Exhibit O.

#### Exhibit O

##### CSC SI MARKETING STRATEGY

- Focus commercial growth on CSC Consulting and CSC Europe
- Focus on strategic consulting, then implementation
- Leverage federal experience
- Build on Partners' and CIG-Intersys' commercial experience

The marketing strategy appears to build on leveraging the Index Group's strategic consulting reputation and programmes. The Index Group has provided high-level education and consulting to both U.S. and European clients. It has a reputation for providing excellent client support in identifying strategic information systems requirements, developing strategic solutions that provide competitive advantage, and addressing mission-critical applications. This capability that Index Group provides is critical to CSC's marketing strategy, as it does not otherwise have access to a large commercial customer base or a large commercial sales force.

From an implementation point of view, CSC's credentials are extremely strong, as it has its federal skill base, CSC Partners, CIG-Intersys and its other acquisitions to call on. As other federal integrators have recognised, CSC will have to train its people to interact effectively with commercial customers, and to modify its federal implementation practices to work effectively in a commercial environment. CSC has, and continues to carefully select, acquisitions and partners to assist in this transition.

CSC has a much lower presence in Europe than the U.S., but is concentrating on fusing the full spectrum of the company's capabilities and skills to meet the needs of European users.

CSC's European managers are drawing on CSC's large-scale project experience with the U.S. government to pursue major multi-national and public sector opportunities. Europe also played a major role last year in creating CSC's new commercial methodology, an approach to the problem of defining the basic requirements of systems that truly meet the fast-changing needs of users.

As the marketplace of the 90s shifts its outlook and approach to using information technology, CSC believes it is well-positioned to help clients alter their traditional focus on how to build systems and examine the broader issues of how to shape technology around business visions and goals. According to CSC, the rapid growth of CSC Index, the Company's strategic consulting practice - which has doubled its volume of business since CSC acquired it two years ago, with a revenue increase in fiscal 1991 of 50 percent - reflects the strong demand for technology thought-leaders who can provide ambitious results.

At the same time, the pressure to monitor and control rising information technology costs is prompting businesses to reexamine their approach to systems operations. With an eye on the bottom line, clients are increasing their demand for services like outsourcing of systems operations. CSC believes it is well-positioned to meet these needs, focusing on vertical industries such as insurance, health care and financial services.

In Europe, CSC is targeting large organisations via a focus on client managers, a team of highly-skilled consultants who are the front-line catalysts for new business. These industry experts - who specialise in banking, retail, defence, air traffic control, the environment, government and transportation and distribution - sell the full range of CSC services and skills by orchestrating all the company's resources around a specific client need.

(i) Consulting

CSC's consulting group is organised into three divisions:

- CSC Index
- CSC Partners
- Cleveland Consulting.

CSC Index focuses on three main disciplines: business strategy and operations; information technology; and change management.

- Business strategy and operations includes:
  - Formulating business strategies
  - Redesigning management and operational processes to achieve goals
  - Developing new approaches for working with suppliers and customers to improve speed and service.
- Information technology consulting includes:
  - Identifying opportunities where information technology can enable new strategic initiatives to be taken
  - Developing approaches for the competitive application of information technology.
- Change management consulting includes:
  - Assessing and developing human resources to meet business needs
  - Building a clear understanding of and commitment to required business changes
  - Creating and implementing new structures for the systems organisation.

- Index's fiscal 1991 revenue was about \$600 million, a 50% increase over fiscal 1990 revenue.
- Index works primarily for the Fortune 500 manufacturing and service companies in the U.S. and the Financial Times 500 in Europe. The firm has assisted 19 of the 25 largest U.S. corporations.
- In addition to consulting, Index conducts executive education programmes and corporate-sponsored research for more than 200 major companies.

CSC Partners provides consulting services to Fortune 1000 corporations and other large users of information systems technology. The former Communications and Integration Services Division of CSC was merged into CSC Partners during fiscal 1991.

- The firm specialises in information systems consulting, systems integration, and the design, building, and integration of information systems.
- Services include information system planning; assisting companies in becoming more effective at systems development; developing IS and process quality programmes; reviewing "out of control" projects; data base reviews; data modeling; project management; technology architecture; requirements definition; and professional services.
- CSC Partners' fiscal 1991 revenue approximated \$120 million (including the results of the former Communications and Integration Services Division). This represents a 15% increase over combined fiscal 1990 revenue.
- The unit specialises in the manufacturing, distribution, financial services, energy/utilities, retail, publishing, and communications industries.
- The firm also provides technical, project management, and quality improvement education and training.
- CSC has had a continuous contractual relationship with AT&T for over 20 years.
- For U.S. Sprint, CSC is developing a system that automates service requests for consumers and businesses.

Cleveland Consulting counsels clients on strategies and effective management of all links in their supply chain. It serves more than 250 clients worldwide, including 25 of the 50 largest U.S. industrial companies.

CSC considers itself uniquely positioned in Europe with its depth of talent in strategic business consulting. The company's acquisition in fiscal 1992 of Butler Cox, a leading consultancy in information management in the United Kingdom, creates - with CSC Index's European activities - one of the continent's largest consultancies in information technology management and business reengineering.

#### (ii) Geographic Coverage

CSC remains a predominantly U.S.-based company with only 12% of its fiscal 1991 revenues derived from Europe. However these European 1991 revenues of \$200m represent a 150% increase in European sales over the last two years.

Within Europe, CSC has historically only maintained a presence in Belgium, the United Kingdom, Germany, and the Netherlands.

However growth by acquisition in Europe continues to be a key strategic goal. Fiscal 1991 marked the full integration of two key acquisitions from the prior year: Inforem, a British systems integration firm, and CIG Intersys, the largest computer services company in Belgium. CSC also acquired in fiscal 1991 Moria Informatique, a Paris-based systems integration and software firm. With in-depth industry strengths in financial services, manufacturing, aerospace and public utilities, Moria gives CSC a platform for growth in Europe's largest software and services market.

In 1991 CSC restructured its five independent (country-based) European business units into a single networked organisation.

The company is positioning its 1,800 European employees to serve a dual role. In their own national markets, they are building strong local identities and ties, and in the broader European Community, they are collectively pursuing large, multi-national opportunities as Europe erases the boundaries between its 12 economies and creates a single market.

#### (iii) Partnerships

In the area of commercial systems integration, CSC has the following alliances:

- In June 1990, CSC and Mitsui & Co. entered into an agreement to jointly market systems integration services to U.S. operations of Japanese companies.

- In January 1990, CSC signed a service alliance agreement with DEC to pursue systems integration business in the distribution and logistics marketplace, as well as opportunities within the telecommunications industry.
- In November 1989, CSC signed a joint marketing agreement with SAP America Inc. to jointly market vertical-industry solutions primarily in the manufacturing and distribution-related industry segments, using SAP's line of software products called the R/2 system.
- CSC Partners' Minneapolis (MN) office is an IBM Business Partner for midrange systems.

CSC has historically not made a conscious effort to publicise a broad set of alliances. It believes that development of these alliances would cast doubt on its ability to be truly independent in developing the best solutions for its customers. In its federal SI efforts, CSC has worked with most of the major hardware and software vendors in teaming or prime contractor/subcontractor relationships. The company feels comfortable that it can develop and work whatever relationships are necessary to meet its prime contractor responsibilities.

During late 1989, CSC did begin to announce formal alliances, the first with SAP America to market vertical industry solutions, primarily in manufacturing and distribution-related industry segments. In early 1990 it announced an alliance with Digital Equipment to pursue SI opportunities in distribution, logistics and telecommunications.

Among its many relationships, of particular note are those with AT&T and IBM. AT&T is a major CSC customer and CSC has developed a number of projects for and with AT&T, including the major U.S. government communications contract, FTS-2000. CSC has worked with IBM on a variety of programs, the largest being the \$3.5 billion FAA award.

Overseas, CSC announced in 1989 a five-year joint marketing agreement with British Telecom.

**(b) Strengths and Weaknesses**

CSC has been very successful with its federal systems and services and professional services businesses, where it has provided requirements analysis, software development, systems engineering and integration, and communications and facilities management, primarily to its major customer, the U.S. federal government. The company has historically had a very high success rate, winning over 60% of bids, although in calendar 1990 year, its win rate declined to 56%. It also has a strong base of multiyear mega-contracts, generally contracts with a total value in excess of \$100 million, which fuel the company's traditionally strong growth rates. CSC reports that in fiscal 1989 it won eight such awards with total contract values in excess of \$1.7 billion, in addition to scores of smaller contracts. In fiscal 1990 it did not have its customary success in winning these large "mega-contracts".

CSC had not played a major role in the commercial professional services market before 1987, when it announced a goal of attaining 50% of its profits from commercial business by 1992.

CSC's experience, its strong set of technical skills, and its success in federal systems integration positions it well to participate in the commercial SI market. In addition, through acquisition and its processing services activities, it has a base of commercial skills. Brief descriptions of the individual SI capabilities are given below:

- a. **Business Consulting** - These skills, once limited to federal applications, have been expanded to the commercial market through the acquisition of a premier consulting organisation, Index Group. The acquisitions of Computer Partners, Cleveland Consulting, CIG-Intersys and other firms also strengthen this area.
- b. **Design Methodology** - CSC has been known traditionally as a competent and capable designer of information solutions. It has and uses CASE products to support its design methodology.
- c. **Design and Integration, Project Management, Software Development, and Education, Training and Documentation** - CSC has been strong in these areas and should be able to transfer these capabilities to commercial opportunities effectively.
- d. **Packaged Application Software** - CSC's primary application software offerings are provided through its Industry Services Group. It had marketed a turnkey system called MAN-FACT II to discrete manufacturers, but sold it in March 1989. CSC also has developed industry-specific software for insurance and tax processing. Its purchase of Logic Inc. strengthens its insurance offerings.

- e. **Packaged Systems Software, Standard Computer Hardware and Custom Computer Hardware** - Computer Sciences manufactures no computer hardware, nor does it develop systems software products. It prefers the flexibility of being able to select the products that are best suited to meet the needs of the current systems problem and that will provide the best solution.
- f. **Network Management and Operations** - CSC has strong network management and operations capability as a result of experience developed through its remote processing businesses, its worldwide Infonet network, and the building of private data networks for the U.S. government. It has participated successfully in large federal network contracts such as the U.S. Treasury and FTS-2000. It is interesting to note that it often works closely with AT&T; announcement of formal relationship with AT&T has been rumoured in the past.
- g. **Service and Repair** - CSC offers system service and repair only as part of its remote processing and network service, or ancillary to its systems integration contracts.
- h. **Software Maintenance** - Since CSC provides limited software products, it has limited software package maintenance capability.

Exhibit P identifies CSC's major strengths and weaknesses. As a candidate in the commercial SI arena, it has strong experience and technical capabilities. It has a reputation in the federal markets as an aggressive competitor and competent integrator. It has broad and strong technical and management skills. It has not committed to a single vendor's hardware and/or software products and, as a result of its recent acquisitions, now has commercial strategic consulting skills and enhanced vertical industry knowledge and experience.

#### Exhibit P

**CSC COMPETITIVE STATUS**

STRENGTHS	WEAKNESSES
Federal SI experience	Geographic coverage
Technical strength	Commercial sales organisation and experience
Product vendor independence	
Business consulting skills	

CSC's major weaknesses in the commercial market are its lack of commercial marketing experience and geographic sales and implementation coverage.

**(c) Conclusions**

It is clear that CSC has set its sights on becoming a major player in commercial systems integration, and is making significant investments to reach this goal. It has carefully selected and acquired firms that will help it achieve this goal. INPUT believes CSC's strategy, which is built around strategic consulting provided by the Index Group and its solid federal project management skills, is sound. It provides unique commercial consulting experience as well as access to a commercial client base - both capabilities that federal integrators generally lack.

Its string of carefully selected acquisitions provide it with the bridge that is necessary to convert federal experience and skills to commercial application implementation. However, CSC may not yet realise quite how difficult this step is.

INPUT believes that CSC will continue to acquire commercial firms that expand its geographic and vertical industry coverage. On the whole, CSC's strategy seems sound.

However CSC has yet to reach a critical mass in Europe, and so further acquisitions in the major European countries are required. Accordingly it is unlikely that CSC will become a major force in the European systems integration market over the next five years.

CSC's industry coverage and application software product access may also need significant strengthening for the company to succeed in the European commercial systems integration market.

**(d) Strategic Assessment - CSC**

CSC is an example of a very large successful U.S. based services vendor that has never been able to match its promise to achieve a similar position in the European market. One need look no further than its strong U.S. Federal Government orientation for an answer to this question. Indeed in Europe its business has leant heavily on NATO and other government influenced contracts for its development.

CSC has undoubtedly got a significant depth of project management and consulting experience to bring to bear to the systems integration opportunity. It is attempting to develop its European business through an acquisition strategy and to move into U.S. commercial markets. The recent General Dynamics outsourcing deal is an example of the latter but tempered by the fact that General Dynamics itself is a major Pentagon 'oriented' company.

CSC is likely to be constrained from reaching the highest levels of the systems integration market by its strong focus on IT oriented services and a lack of willingness to embrace the wider business needs of its clients. Nevertheless it is expected to remain a significant second rank player.



## COMPANY PROFILE

**DATA SCIENCES LTD**

Pinehurst House  
Farnborough Road  
Farnborough  
Hampshire GU14 7NB  
Tel: 0252 544321  
Fax: 0252 546712

Chairman & Chief Executive: Mike Smith  
Status: Private  
Number of employees: 1,950  
Revenue (FYE 31-3-91) £117 million

**The Company**

Data Sciences was formed on August 1st, 1991, following a management buy out of Thorn EMI Software for £82 million.

The deal was structured to give all employees the opportunity to own shares in the business, and is underpinned by the financial backing of CINVen, the U.K.'s second largest venture capital group. CINVen manages funds of over £600 million, comprising the venture capital assets of the pension funds of British Coal, British Rail and Barclays Bank. The senior debt for the transaction was arranged and underwritten by National Westminster Bank PLC, Acquisition Finance Unit. Thorn EMI will retain a 20% stake in Data Sciences.

Data Sciences believes that the buy out gives the company the freedom of manoeuvre to respond swiftly to market opportunities, and to broaden its European coverage. In particular, Data Sciences is seeking to adopt a sustained drive into Europe from countries such as the Netherlands, where the company's revenues doubled during 1990 and 1991.

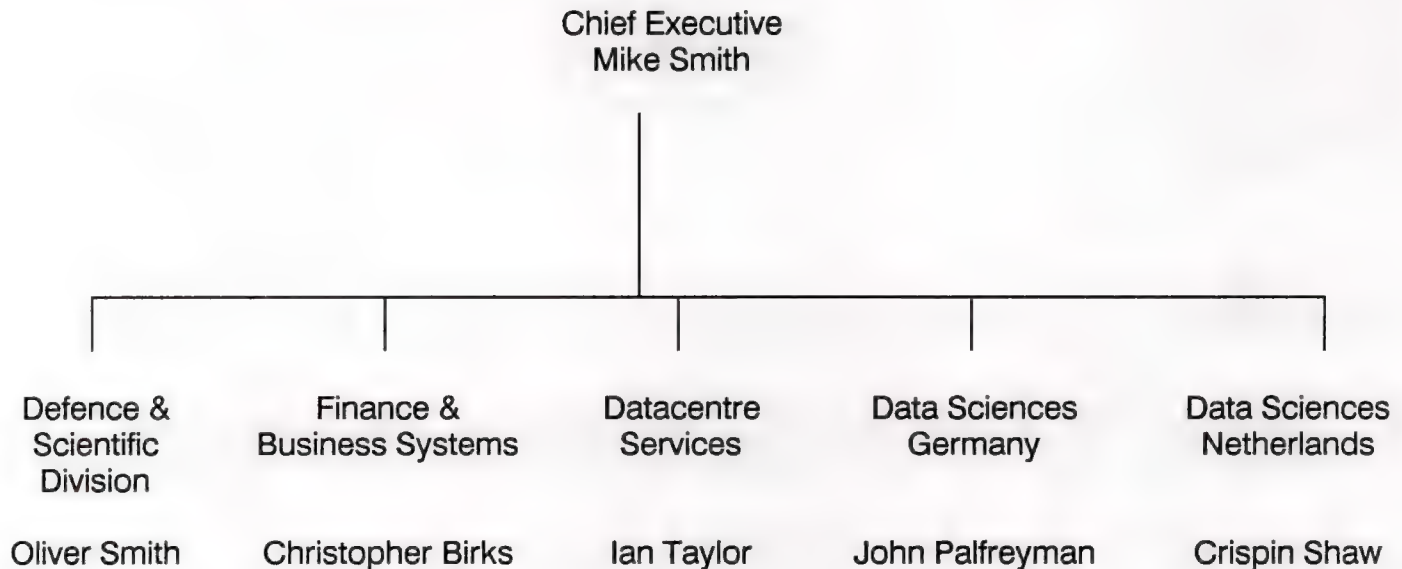
Data Sciences employs 1,950 staff across 14 sites, including operations in Germany and the Netherlands. The company exports to over 30 countries and has formed joint ventures and strategic alliances as far away as Japan and Australia. The company has a software- and services-based culture independent of any manufacturer and has a track record spanning over 2,500 successful projects.

With a turnover of £117 million, Data Sciences claims to be one of the largest U.K. specialists in computer systems integration, advanced software development and the facilities management of computing operations. In the last two years the company has rationalised its operations to integrate the twin strategic pillars of systems integration and facilities management under a single banner. Its focus on leadership in key market sectors - such as financial services, retail, defence and aerospace and the public sector - generated pre-tax profits of £6.2 million in fiscal 1991.

**Organisational Structure**

The overall organisational structure of Data Sciences showing the company's major divisions is provided in Exhibit A.

Exhibit A



The major activities of each of these divisions are as follows:

**Defence and Scientific**

565 staff. Covers defence-related systems, environment and space, public administration, command and control, air traffic control, training systems and trusted systems.

**Datacentre Services**

666 staff. Facilities management. Also includes distribution and accounting, direct marketing, payroll processing and one of the biggest disaster recovery services in the U.K. with Datashield.

**Finance and Business Systems**

246 staff. Dealing and settlement systems (COLT handles 83% of the U.K. equities traded in London), unit trust and mutual funds, retail financial services, payment systems, taxation and insurance, retail, commercial, hotels and leisure.

**Data Sciences Germany**

90 staff. A designated "Centre of Excellence" in finance and banking systems. Focus on developing software for automated product and process control applications for the motor and electronics industries.

**Data Sciences Netherlands**

169 staff. One of the leading Dutch systems houses with strengths in manufacturing systems, financial applications and command and control systems, as well as important emergency services applications.

**Recent  
Major Projects**

A sample of recent major projects carried out by the company are as follows:

- U.K. Passport Office (£9m project to computerise passport issue)
- "Trawlerman" (£30m secure database/office automation system for the Ministry of Defence)
- Cambridgeshire County Council (£2m facilities management contract)
- Earth Observation Data Centre (£9m design/development of computing facilities)
- Rotterdam (£5m system design for managing harbour traffic)
- TVS (£800k facilities management contract).

**Key Products  
and Services**

Data sciences' main products and services are as follows:

**Consultancy**

As an independent service provider Data Sciences delivers information systems consultancy within any one of its disciplines - or in all of them. At the corporate strategy level, the company is retained to audit an organisation's integration technology (IT) infrastructure in relation to its business needs and make comprehensive recommendations for future IT directions. However, its consultants also frequently work within much narrower parameters. They may, for example, provide consultancy which focuses specifically on procurement support, transition management or on contingency planning.

**Systems Integration**

Data Sciences is a leading systems integrator in the U.K. and prides itself in its project management skills and in its formal methodologies and codes of practice for risk management, which have been used in more than 2,500 projects to date.

## **Systems Operations**

The Datasolve Systems Operation service currently has a client base of 50 customers. Over two-thirds of the revenues from these clients comes from the highly competitive platform operations segment. In total, Data Sciences has 13 data centres. Its main sites are based around London at Sunbury, Croydon, Hoddesdon and Westmount. Overall, the company's operations are principally service based around IBM mainframes and employs approximately 400 personnel.

## **Disaster Recovery**

The Data Sciences Datashield operation provides disaster recovery capability in the U.K., protecting over £100 billion of international business. It is based on dedicated, fully resourced large computer systems maintained on permanent standby by full-time specialist staff.

## **Supporting Services**

Supporting services include the Datapay payroll processing service, Dataprint laser printing and the Database Marketing service. Datapay is growing at 25% a year and handling payroll processing for entire organisations. Dataprint specialises in printing complex and variable information, and can handle output of up to 25,000 pages per hour. The Database Marketing services encompass the development and management of comprehensive marketing databases, combining and matching data on individuals for qualified, finely targeted mailing.

## **Products**

Data Sciences offers a considerable portfolio of self-contained products - discrete solutions, many of which are focused on specific vertical markets. A features of its software is that much of it has been developed in the form of 'kernels' which means that ready-made solutions may be adapted for incorporation within new systems. This significantly reduces the time and cost of customised software development.

## Financial Information

Exhibit B provides a five-year financial summary for Data Sciences, and Exhibits C and D provide revenue breakdowns by industry and country. The fall in revenues for fiscal 1991 can be largely attributed to the divestment of the company's TECS subsidiary at the end of 1990.

### Exhibit B

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-3)

YEAR	1987	1988	1989	1990	1991
Revenue (£m)	94	112	123	130	117
Annual Growth Rate (%)	4	19	10	6	(10)
Pre-tax profits (£m)	N/A	N/A	N/A	N/A	6.2
Revenue per employee (£000's)	N/A	N/A	N/A	N/A	60

### Exhibit C

#### REVENUE BREAKDOWN BY INDUSTRY, 1991 DATA SCIENCES, EUROPE

SECTOR	REVENUES (£m)	PERCENT
Defence & Aerospace	38	32.7
Industry/Manufacturing	29	24.9
Commercial/Retail	25	20.8
Finance	17	14.6
Government	6	5.3
Other	2	1.7
<b>TOTAL</b>	<b>117</b>	<b>100</b>

Source: Data Sciences

## Exhibit D

**REVENUE BREAKDOWN BY COUNTRY, 1991**

COUNTRY	REVENUES (£m)	PERCENT
U.K.	90	77
Germany	17	15
Netherlands	10	8
<b>TOTAL</b>	<b>117</b>	<b>100</b>

**Market Analysis**

Breakdowns of Data Sciences' revenues by delivery mode and INPUT's industry sectors are shown in Exhibits E and F.

## Exhibit E

**REVENUE BREAKDOWN BY SECTOR, 1991  
DATA SCIENCES, EUROPE**

SECTOR	* REVENUES (£m)	PERCENT
Central Government	38	32
Discrete Manufacturing	25	21
Process Manufacturing	7	6
Local Government	3	3
Banking & Finance	15	13
Insurance	2	2
Business Services	10	9
Retail	12	10
Wholesale	5	4
<b>TOTAL</b>	<b>117</b>	<b>100</b>

\*INPUT estimate

## Exhibit F

**MARKET ANALYSIS BY DELIVERY MODE, 1991  
DATA SCIENCES, EUROPE**

DELIVERY MODE	REVENUE (£m)	PERCENT
Processing Services	10	9
Network Services	2	2
Application Software Products	10	9
Professional Services	30	25
Turnkey Systems	10	9
Systems Operations	40	34
Systems Integration	15	12
<b>TOTAL</b>	<b>117</b>	<b>100</b>

### Company Strategies

#### (a) Company Direction

The management buy out of Data Sciences from Thorn EMI in 1991 is intended to give the management of the company the freedom of manoeuvre and opportunity to develop the business into one of the major European computing services companies.

The company's overall target sectors are financial services, retail, defence and aerospace and the public sector.

In terms of services, the company's strategy is based on two core capabilities - systems integration and systems operations. Data Sciences' systems integration activities are supported by its knowledge of its target industry sectors and by its development of kernels which provide a range of building blocks for these sectors. The company is one of the market leaders in both systems integration and systems operations in the U.K.

The company offers a number of software products - the major ones being:

- CHAMPS (management system for hotels/leisure industry)
- VALUTA-AIDS (dealing room system for banks)
- THREADS (Unit Trust management administration system)
- COLT (leading securities dealing system in London and the U.S.)
- MURCO (stock forecasting and inventory management system)
- TAXPOINT (market leader in tax compliance systems).

**(b) Strengths and Weaknesses**

The company's current strengths are summarised as follows

- Established outsourcing and SI vendor
- Presence in Germany and Netherlands
- Application software products for Banking and Finance sectors.

Data Sciences is an established outsourcing company and systems integrator in the U.K. Its systems integration division holds a strong position within the defence sector, particularly for the U.K. Ministry of Defence (MOD). In fact, 45% of the division's revenue comes from defence and aerospace.

Data Sciences' outsourcing operation has a client base of 50 customers spread across the manufacturing financial services and business services sector. It is estimated that the revenues from this division earned the company £40 million in 1991.

The company's subsidiaries in the Netherlands and Germany, with their particular strengths in systems integration and finance and banking systems, can only assist in developing activities outside of the U.K. and particularly in Eastern Europe.

Data Sciences has a wide range of applications software products for the banking and finance sector. However, in other sectors, Data Sciences' portfolio is less extensive and the company is more reliant on strategic partnerships with vendors of suitable products.

**(c) Conclusions**

To become a major European player, Data Sciences will require substantial development of activities outside the U.K., and there is a need for a substantial acquisition programme if the company is to achieve its objective.

Certainly its subsidiaries in both Germany and the Netherlands can act as a springboard for the company's European development. Its German sites offer particular emphasis on financial and industrial process control systems whilst its Dutch operation concentrates on systems integration services and has developed specific skills in the manufacturing sector and in command and control systems.

As well as being centres of excellence in their own right, these companies also facilitate access to the full range of services for Data Sciences' expanding European customer base. The German operation is particularly well situated to meet eastern Europe's growing demand for computer services. Data Sciences currently exports its skills, services and products to more than 25 countries worldwide.

At present, 93% of Data Sciences' overall revenues are derived in the U.K. The main challenge is for the company to expand its core activities within major European markets.

The management of distributed systems and the provision of desktop services will be important targets for Data Sciences over the next few years. In the maintenance environment, multivendor deals are expected to increase in importance.



## COMPANY PROFILE

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### **DATEV eG**

Paumgartnerstrasses 6-14  
8500 Nuremberg 80  
Germany  
Tel.: 49 911 276-0  
Fax: 49 911 276 3196

MD: Heinz Sebiger  
Status: Private  
Number of Employees: 3,904  
Revenue (FYE 31-12-9): DM 741 Million

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### **The Company**

DATEV was founded in 1966. It is a co-operative society maintaining an EDP service centre for the tax-consulting profession in Germany.

Members are tax consultants, certified public accountants, attested auditors and lawyers in Germany, tax-consulting companies and auditing companies.

Members of the co-operative are offered support and advice in the consulting and servicing of client companies. Members can avail themselves of a range of EDP service programs through DATEV's computer facility in Nuremberg. Drawing on a base of general accounting and annual financial statement programs, DATEV has developed an information system that supports the tax consultant in dealing with problems and data as well as in computing taxes. Depending on the field of application and the program, tax consultants can decide whether the data should be processed at the computer centre, on a personal computer in the office or by a combination of both techniques. Access to the large computing and processing capacities is ensured at all times through the company's own data network.

At present DATEV has 31,950 members providing services to approximately 1,600,000 clients. DATEV's 3,904 employees work at company headquarters in Nuremberg and at the 26 information centres located throughout Germany. DATEV reported 1991 revenues of DM 741.4 millions.

**INPUT LIBRARY**

## **Accounting Programs**

### **Financial Accounting (FIBU)**

This system produces accounts, journals and lists of totals and balances as well as financial statement analyses, economic analyses statistics, cost statistics, comparisons of actual versus expected and/or actual versus previous year, and pretax declarations.

Twenty different chart of accounts variations are available. In addition, the system produces a balance sheet, including a condensed version of financial statement and profit-and-loss account, balance sheet ratios, etc.

Other program features include:

- Agricultural accounting - the processing of produce quantities as well as values
- Balance sheet comparisons
- Property accounting
- Notes added to the balance sheet

Available reports include:

- Statement of fixed asset movements
- Notes to the financial statements

### **Costs Accounting**

This program is an extension of the Financial Accounting System (FIBU). By storing cost centres and additional master data, individual operational accounting, cost centre accounts and accounting per product unit is possible.

### **Accounts Receivable/Accounts Payable**

In this system, accounts receivable/accounts payable ledgers are maintained; reminders, remittance slips and cheques are printed; and debit advice is made possible. An A/R aging schedule allows quick assessment of liquidity. In addition, credit assessment is simplified through delinquency statements, which show clients' historical propensity to pay.

### **Payroll Accounting**

DATEV's Payroll Accounting Program is neither industry- nor size-specific. This program can handle special requirements for the construction industry, for part-time employees, etc.

### **Tax Programs**

Tax computations are an essential part of a tax consultant's work. For example, it takes a great deal of time to compute reserves or alternative tax burdens. Also, it provides very effective support in this area. Lengthy and time-consuming computations of various alternatives can be saved, and all the latest legal provisions are automatically taken into account.

#### **Personal Income Tax**

The system computes annual income tax and church tax liability, taxable income, etc. Also, it provides annexes concerning types of income and deductions.

#### **Corporate Tax**

Taxable income and tax reserves are computed, alternative distributions are compared, and tax forms are printed.

#### **Trade Tax**

This industry-specific module processes tax returns for sole proprietorships and partnerships.

#### **Comparison of Tax Burdens**

This program allows the user to simulate different forms of ownership/organization and their effect on the overall tax burden.

### **Programs For Economic Advice**

#### **Comparative Business Analysis**

For certain industries, averages are provided to enable comparisons between a company and its respective industry. By comparing a company's figures with average values of the industry, it is possible to recognise weaknesses of the company and to provide valuable data for management decisions. Standard measures include income statements as well as various economic statistics.

### Inventory Control, Sales Analyses and Statistics

This system supports the control of the flow of goods and commodities. It provides a basis for fixed-point as well as perpetual inventory, and assists in preparing the balance sheet with regard to stock on hand by taking into account all necessary valuation criteria.

### Business Management and Information System (BIS)

This system is tailor-made for the special needs of the retail trade. The following reports are available: short-term profit-and-loss accounts for group of goods, divisions, branches, etc.; surveys of the movement of goods; economic statistics; surveys of sales performance by branch; limit planning and control for groups of goods and divisions; and contribution margin techniques for sales departments. The statistics of stock and sales volume show the performance in the retail trade.

### Comparative Investment Financing (FINA)

FINA provides a comparison of financial methods, allowing users to decide what financial route they want to take. Users can compare the methods: purchasing, leasing, rent-to-own and installment. The program calculates the effects of these financing methods on the tax burden, on liquidity, and on the cost of capital.

### Financing, Results, and Tax Planning (PLAN)

PLAN allows firms to make an integrated five-year projection of finances, profits and taxes, based on the latest balance sheet and income statement. Projected statements can then be used as an aid in formulating new strategies.

### System for Management Information and Diagnosis (MIDIAS)

This is a question-oriented, computer-aided interactive program to analyse the performance and financial situation of companies. It is a PC application within the DATEV system for distributed processing (DVS), mentioned later. Information stored at DATEV can be analysed, in addition to data collected directly at the tax consultant's personal computer. MIDIAS consists of five parts: profit analysis, balance sheet structure analysis, growth and cash flow analysis, ratio analysis, and time series analysis.

## **Tax Consultancy Office Organisation**

Electronic data processing has become an indispensable tool for the rational organisation of work in the consulting field. For years DATEV has offered programs on consultancy that can be adapted to the specific needs of each member.

### **Office Organisation, Time and Activity Studies**

This system offers practical help for decisions and organisation in the tax consultancy office. The evaluations - standard evaluations as well as individual evaluations - are provided according to employees, clients or activities. As evaluations are based on time registration by the employees, it is possible, by given standards in marks, time or direct costs, to make quota:actual comparisons.

### **Addresses and Statistics (ASP)**

This system is eminently suitable for the production of lists, card indexes, address labels, membership cards and membership fee billing. ASP performs time-consuming routine work for attorneys, tax consultants and other professional associations. Program applications can be interfaced with other DATEV programs.

### **Data Collection Services**

Tax consultants (members of DATEV) and some of their large company clients use data collection devices to convert data from source documents to some form of electronic media. DATEV accepts data on the following media: optical readable tapes, optical readable forms, magnetic tape cassettes and floppy discs. Ninety-eight percent of data reaches DATEV on-line.

### **Teleprocessing**

Since 1974 DATEV has offered its members teleprocessing services. Data that is collected on magnetic tape cassettes in the tax consultant's office during the day can be processed later during non-business hours. During the night, connections are made automatically and input and output data is transferred between the user's terminal and DATEV's computer centre in Nuremberg. To reduce costs for its members, DATEV decided to build its own telecommunication network. The network consists of 36 concentrators installed in Germany and telephone lines leased by DATEV from the Federal Post Office.

Regardless of the location of the member's office, telephone fees are assessed at the same rate as for a local call. If there is no concentrator in the immediate vicinity, the member's costs that exceed the charges for a local call are reimbursed.

### **Distributed Processing**

Since the summer of 1984, all of DATEV's services have been available over the Distributed Processing System (DVS). This system allows a direct link between DATEV's mainframe computers and the personal computers located in tax consultants' offices. This allows the tax consultant, at any given time, to choose the best method of data processing for a given requirement. Consultants can choose between batch processing at the Nuremburg Computer Centre, a direct on-line dialogue or a fully autonomous PC application.

### **Data Banks**

#### **Tax Law Data Base**

In 1968, DATEV, together with three publishing houses, started to investigate tax-law retrieval and word processing systems. In 1970, DATEV began to build a large database with the taxation authorities of the States of Bavaria. In addition, this database includes regulations and contributions from relevant journals.

Today, the database consists of more than 100,000 fiscal documents, the majority in full text. It is estimated that every year approximately 1,400 fiscal court decisions, 1,200 administrative regulations, and approximately 2,000 important contributions from professional journals will be added.

Ordinary telephone lines are used for data collection as well as for information retrieval. There is no doubt that this special service has become an indispensable help in the daily business of the tax consultant. The database service is currently unique in Germany.

#### **Grants and Subsidies Database**

The aim of this database is essentially to provide information and advice to small and medium-sized firms that do not have the opportunities of large firms with a larger staff and separate tax departments.

A database inquiry system via an on-line dialog provides information about the aid programs sponsored by the federal and regional governments for trade and industry and self-employed professions. Descriptions of over 360 such individual programs are available at the moment.

The individual programs are clearly edited and arranged to present the user with the desired information in a particularly time-saving yet comprehensive fashion.

Included in the data files are federal aid programs that are directly related to members' interests - e.g., refinancing loans and counter-guarantees.

## Financial Information

### Exhibit A

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (DM MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenue	452.9	501.7	535.5	613.2	741.4
Annual Growth Rate (%)	13	11	7	15	21
Profit before Taxes	50.5	50.2	26.5	23.0	33.7
Annual Growth Rate (%)	35	(0.6)	(47)	(13)	47
Profit after Taxes	16.4	17.9	7.3	7.3	10.9
Annual Growth Rate (%)	33	9	(59)	-	49

## Market Analysis

Exhibit B gives a breakdown of DATEV's revenues by INPUT delivery mode. All activities are defined as cross-industry and all revenues are derived in Germany.

### Exhibit B

#### 1991 MARKET ANALYSIS BY DELIVERY MODE (DM MILLIONS)

INPUT DELIVERY MODE	REVENUE	PERCENT
Processing Services	550	74
Systems Operations	5	1
Systems Software Products	10	1
Applications Software Products	110	15
Professional Services	65	9
<b>TOTAL</b>	<b>740</b>	<b>100</b>

### Company Strategies

In 1966, DATEV founders recognised the need for EDP services for the tax consultancy profession, where there was a constant shortage of qualified personnel. The idea behind DATEV, that of combining a non-profit-seeking organisation and a service organisation, allows DATEV to offer its members maximum service and benefits at the lowest possible cost.

DATEV's main strength is its position as both a co-operative society and an established service vendor organised to supply exactly the services required by its members and their client companies. It is the ultimate customer-oriented company. DATEV has kept abreast of changes and developments in the tax consultancy profession and has broadened and enhanced its services accordingly.

To date, DATEV has not ventured outside of the German market, and as a non-profit-seeking organisation is unlikely to do so. This is not particularly viewed as a weakness as DATEV has such a stronghold in the niche market in which it operates (31,950 members and 1.6 million clients), it is unlikely to lose its market position to other service organisations.

## Conclusions

DATEV is a unique company. It was founded to provide a much needed service in a niche market, which it has continued to supply for the past 26 years. Throughout its history, DATEV has steadily increased revenues and reported respectable profits.

DATEV's success is even more remarkable considering it is a co-operative society and a nonprofit organisation.

DATEV has gone from strength to strength as a niche player, reporting a 1991 turnover of DM 741 million (an increase of 21% over 1990) and net profits of DM 10.9 million (an increase of 49%).

The main bulk of the company's revenues come from processing services, which INPUT estimates were worth DM 550 million in 1991. DATEV also offers a complete set of application programs for the tax consultancy profession, which accounts for 15% of revenues.

DATEV's position as the leading player in its market has made it the largest independent software services company in Germany and a major European vendor, despite its lack of activity outside its domestic market.

INPUT expects DATEV to stay within the tax consultancy profession and to retain its position as the leading services supplier to this market.



## COMPANY PROFILE

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### **DIGITAL EQUIPMENT CORPORATION**

Corporate Headquarters  
146 Main Street  
Maynard, Massachusetts 01754-2571  
Tel: (508) 493 5111  
Telex: 4430127 Digital ACT  
Fax: (508) 493 8780

President & CEO: Kenneth H. Olsen  
Status: Public  
Total Employees: 121,000  
Total Revenue (6-91): \$13,911 million

### **DIGITAL EQUIPMENT CORPORATION**

European Headquarters  
International (Europe)  
12 Avenue des Morgines  
Case Postale 176  
CH-1213 Petit-Lancy 1, Geneva  
Switzerland  
Tel: (41) 22 709 4111  
Telex: 845 422593 DEC CH  
Fax: (41) 22 7094140

President & CEO (Europe): Pier Carlo Falotti

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### **The Company**

Digital Equipment Corporation is a leading worldwide supplier of networked computer systems, software and services. Digital pioneered and leads the industry in inter-active, distributed and multivendor computing. An international company, Digital does more than half its business outside the United States, developing and manufacturing products and providing customer services in the Americas, Europe, Asia and the Pacific Rim. Digital offers a full range of desktop, client/server, production, and mainframe systems for multivendor computing environments. Applications include transaction processing, data management, telecommunications, finance, realtime data acquisition and control, vector processing, education, publishing, manufacturing, software development, and healthcare.

Based on total 1991 revenues (\$14 billion), Digital is the second-largest computer vendor in the industry.

Without question, Digital holds the leadership position in midrange systems. Over the past five years it has capitalised on its strength in departmental and distributed computing, enabling it to expand beyond its traditional emphasis on scientific and technical computing to include the general office and administrative applications. Over the past five years, Digital has shifted its focus from satisfying minicomputer-based departmental information requirements to providing mainframe-based enterprise information capabilities, although more recently the emphasis has now moved to networked client/server architectures and the integration of multivendor computing environments.

Although Digital operates in virtually all industry sectors, primary industry markets for Digital include telecommunications, education, US federal governments, aerospace, automobile manufacturing, banking and finance, health care, and process manufacturing.

Digital is a publicly held company quoted on the NYSE and a number of other stock exchanges throughout the world. Digital has developed primarily through organic growth but has recently undertaken significant acquisitions in Europe, that of Mannesman's Kienzle business in 1990 and in 1991 that of Philips minicomputer line.

These acquisitions will assist Digital in addressing small and medium-sized enterprises, as growth in the traditional large company sector decreases.

Digital like all other system vendors is facing a crisis brought on by:

- declining demand for proprietary products
- industry recession
- new business at low margins.

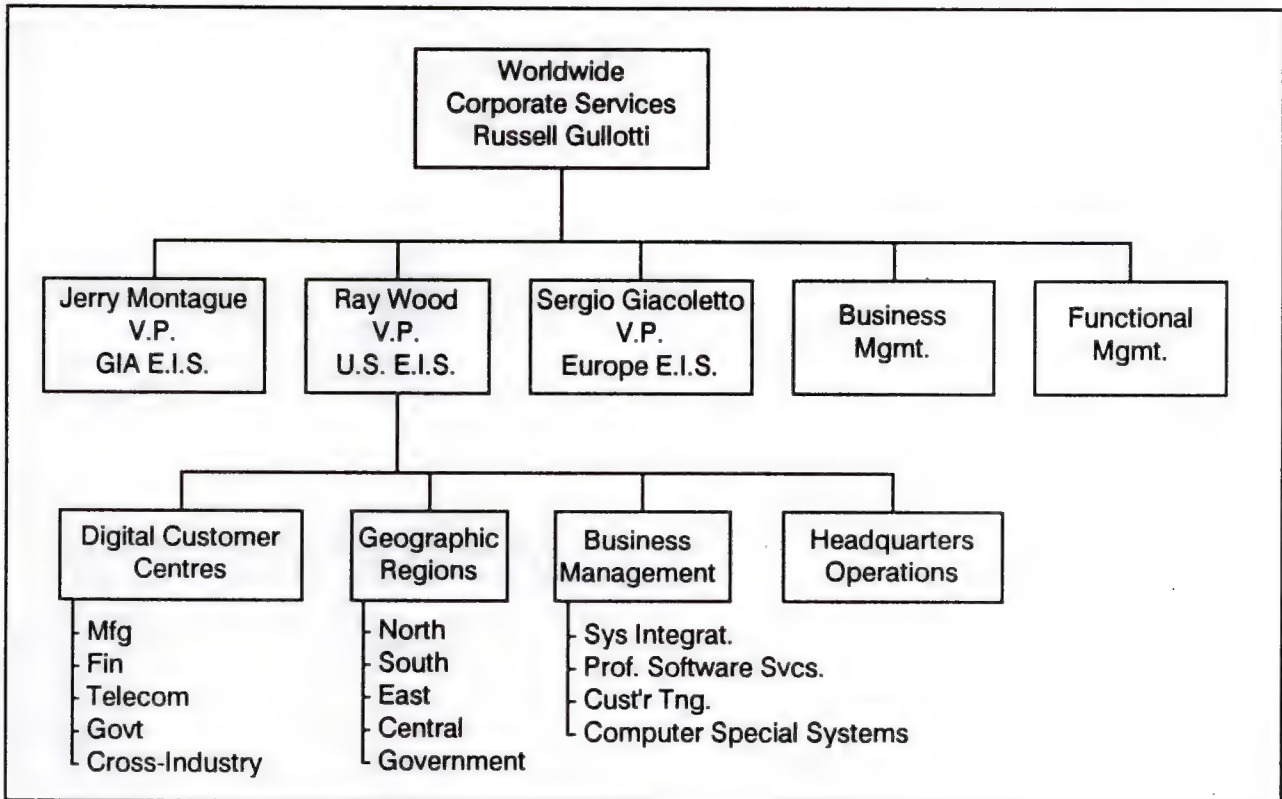
## Organisation Structure

In early 1989, Digital formed the Enterprise Integration Services (EIS) Group, bringing together 18,000 employees who had been doing SI work and putting them into a single organisation under a corporate vice president, EIS Group VP, Russ Gullotti.

Digital has traditionally operated using a matrix organisation; the EIS group is no exception. Exhibit A illustrates the Digital EIS organisation.

## Exhibit A

## DIGITAL ENTERPRISE INTEGRATION SERVICES ORGANISATION



## Key SI Contact:

Russ Gullotti  
 Vice President  
 Corporate Services  
 Digital Equipment Corporation  
 Nine Executive Park Drive  
 Merrimack, NH 03054-0430.

- The Digital Customer Centres (DCCs) provide a full range of support services to the field sales organisation. These centres are industry focused and include:
  - Application Centres for Technology (ACTs), which provide focused industry applications and emerging technology support expertise
  - Management consulting capability
  - Systems integration resources.
- The geographic regions are responsible for managing EIS support to the geographically dispersed product sales organisation.
- Business Management focuses on service or product excellence. For example, the SI Business Manager is responsible for methods, tools, and training for SI resources.

Digital has strong ties to the manufacturing industries - particularly automotive, aerospace, and process. It has historically sold at the department level in engineering and on the plant floor. Because this is such an important part of its business, Digital has established three DCCs for manufacturing. They are:

- Detroit, Michigan - focus on automotive applications
- Santa Clara, California - focus on aerospace
- Atlanta, Georgia - focus on process manufacturing.

Other DCCs within the United States are:

- Washington, D.C. - focus on government systems
- Landover, Maryland - focus on telecommunications and marketing, and cross-industry applications
- New York City - focus on finance and service industries.

Each of the five European Competence Centres specialises in a given market segment. London deals with the Service Industries; Munich works with the Manufacturing Industries; Geneva concentrates on Research, Education and Science; Brussels deals with Government and Healthcare; while the speciality of Sophia-Antipolis in the South of France is Networks, Telecommunications and Corporate Information Systems.

Complementing the work of the Munich DCC is the ACT in Paris, which combines capabilities in Computer-Integrated Manufacturing with a portfolio of solutions for aerospace companies. The ACT in Turin carries out project-oriented activities for the Automobile Industry.

Sophia-Antipolis also houses Digital's European Technical Centre, which represents a strong concentration of computer expertise, and provides a wide variety of services as back-up for the more than 7,000 Digital Field Service personnel operating from 144 locations throughout Europe. It provides a round-the-clock remote diagnostics service which allows system malfunctions on Digital's VAX family at any one of 10,000 customer installations to be diagnosed via a telephone line.

DEC is shifting power from its national subsidiaries into Europe-wide marketing organisations responsible for industry sectors.

The company will regroup its marketing and administrative operations across Europe into 50 autonomous organisations answering to an eight-strong European management team. The move will be effective from 1 July, 1992.

A chairman and director will run each of the organisations, known as enterprises, which will have responsibility for marketing strategies of vertical markets or service sectors across Europe.

Digital's national sales and account management structures are also being overhauled to place greater emphasis on industry sectors.

### **Recent Acquisitions**

Digital has fundamentally developed as a company organically.

However within Europe, Digital has in the last two years made two significant acquisitions, those of the Kienzle operation for Mannesmann and in 1991 of the Philips minicomputer operation.

Effective January 1, 1991, the Company acquired from Mannesmann AG 65% of a new company formed from the Mannesmann Kienzle Computer Systems Division, and the PROCAD GmbH and PCS GmbH divisions of Mannesmann Kienzle. The name of the new company is Digital-Kienzle Computersysteme GmbH & Co. K.G. (Digital-Kienzle). The Company's investment in Digital-Kienzle was \$233 million. This investment advances the Company's strategic thrust in selling to small and medium-sized businesses worldwide and complements a series of new products, services and channels for small and medium-sized businesses announced by the Company during the year. This investment also complements the Company's development and support of UNIX-based applications and enhances the Company's position in selling into emerging markets in central and eastern Europe.

Consistent with this strategy, shortly after the close of the fiscal year, the Company reached an agreement in principle with Philips Electronics N.V. of the Netherlands to acquire most of the Philips' Information Systems Division, subject to receipt of necessary regulatory approvals and negotiation and execution of final agreements.

### Recent Major Projects

INPUT estimates that Digital has undertaken more than 800 SI projects over the past several years ranging in value from hundreds of thousands of dollars to over \$250 million, with an average between \$5 million and \$10 million.

Several SI efforts undertaken by Digital, for which the dollar values are known to INPUT, are shown in Exhibit B.

### Exhibit B

#### EXAMPLES OF DIGITAL SI PROJECTS

COMPANY	PROJECT DESCRIPTION	\$ MILLIONS
Firestone	Computer Integrated Manufacturing (CIM)	21.0
HFSI	Paperless factory	10.0
Nissan	Paperless factory	8.0
Boeing	Sheet metal plant automation	52.0
BIMCO	International shipping network	100.0
Deutsche Telepost	Telecommunications Integration	100.0
Tyson Foods	Logistics	9.2

Digital's SI projects have encompassed applications ranging from computer-integrated manufacturing to inventory management and network integration.

In addition, major projects have been undertaken recently for the Canada Treasury Board and W.H. Smith (a London retailer).

Other projects include:

- The development of a cellular telephone system for the German post office.
- U.S. Navy contract, valued at \$140 million, to provide system based around up to 8,000 local area networks.
- In November, 1990, Digital announced that it was proceeding with a \$60 million SI effort for an unnamed petrochemical process manufacturer in England.
- In March, 1989, Digital won one of its largest SI contracts for automation of a Boeing sheet metal fabrication facility.
- In 1989, Digital won the network management component of the Kodak outsourcing contract. Digital is clearly a leader in network integration and management; this contract was a major event in the 1989 information services market.
- In 1990, Digital won a major CIM contract to rebuild the production and business planning systems for Nissan's Smyrna, Tennessee truck plant. Digital also won multimillion dollar SI contracts at BIMCO, Deutsche Telepost, Canada Post, Bankers' Trust, and Tyson Foods.

## **Products and Services**

### **(i) Technologies**

During the past ten years, Digital has spent over \$17.5 billion on R&D, equipment, and facilities.

Much of this investment has been incurred in developing software to support open, multivendor networking. One key product is Network Application Support (NAS). Conceptually, NAS bridges the differences among various operating environments and industry standards so VMS, UNIX, MVS, MS-DOS, OS/2, Macintosh and other systems can work together in a single open environment.

Coupled with NAS, ADVANTAGE-NETWORKS integrates OSI, TCP/IP, and DECnet protocols to provide the infrastructure needed to connect personal computer networks, Ethernet and token ring local area networks, SNA networks, Novell networks, and public and private wide area networks to support distributed applications, client/server computing, and inter-enterprise communications.

COHESION includes the CASE tools, repository, fourth-generation languages, and the services needed to develop, deploy, and manage applications in open computing environments, while CDA - Compound Document Architecture - enables organisations to exchange multimedia documents containing text, graphics, images, and voice across different systems and applications.

Digital is working with more than 50 research bodies in Europe through its External Research Programme. A new campus engineering centre at Karlsruhe, Germany, for example concentrates on networking, and in the AI field specifically, Digital is working closely with the universities of Marseilles and Edinburgh on one of the major world languages for AI applications.

#### (ii) Industry Knowledge

Digital markets its products and services to worldwide vertical industry markets; however, Digital has chosen to focus its Enterprise Integration Services efforts in the following vertical markets:

- Process industries
- Discrete manufacturing and engineering
- Finance and service industries
- Telecommunications and networking
- Federal agency requirements.

The primary motivation for participating in these markets is existing customer demand. INPUT expects that the range of industries serviced will grow as Digital sees opportunity or loss of account control in any particular industry.

To focus its expertise and efforts on specific manufacturing and service industries, the company has pioneered the concepts of the Digital Competence Centre (DCC), and Application Centres for Technology (ACT). Within the DCCs, and the ACTs that complement them, the architectural framework of Digital's information technology is matched to the needs of industry-specific organisations.

The current DCCs are listed in the section on organisational structure.

## (iii) Key Application Products

Digital has extensive (perhaps the most) experience in developing applications software for minicomputers. Even though in-house expertise might be limited in some vertical markets, Digital's strong network of alliances and third-party developers has produced a full range of applications for Digital platforms.

There are hundreds of third-party suppliers that develop software for the Digital environment. INPUT believes that Digital has strengthened its ability to create continued interest in developing packages for its platforms.

NAS software is now being used as the foundation for a wide range of Digital applications and solutions, such as the NAS Environment for Manufacturing. More than 900 independent software developers have built over 2,000 applications using NAS.

Overall, Digital has formal alliances with over 3,600 Complementary Solutions Organisations who have developed over 7,000 applications for VAX systems, 1,500 applications for Digital RISC systems, and over 300 DECWindows Motif applications for the desktop.

**Financial Information**

Exhibit C shows Digital's five-year financial summary while Exhibit C provides the company's key financial ratios. It can be seen that the company's overall revenue growth has slowed dramatically over the last three years and that this has had a major impact on profitability in 1990 and 1991.

## Exhibit C

FIVE-YEAR FINANCIAL SUMMARY (FYE 30-6) (\$ MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenues	9,389	11,475	12,742	12,943	13,911
Annual Growth %	24	22	11	2	7
Profit after tax	1,137	1,306	1,073	74	(617)
Annual Growth %	84	15	(18)	(93)	(934)
Net income per share (\$)	8.53	9.90	8.45	0.59	(5.08)

## Exhibit D

## KEY FINANCIAL RATIOS

YEAR	1987	1988	1989	1990	1991
Revenues per employee (\$000's)	85	94	101	104	115
Profit per employee (\$000's)	15	13	11	0.1	(5)
Return on sales (%)	17	14	11	0.1	(4)
Return on capital employed (%)	-	21	16	0.2	(7)

## Market Information

Exhibits E and F provide breakdowns of Digital's revenues by region and product/service. As market growth has slowed in the U.S. in recent years, Digital has reached a position where Europe is its major geographic market. At the same time, the company's service revenues are becoming increasingly important.

## Exhibit E

## REGIONAL BREAKDOWN OF REVENUES

YEAR	1991	1990	1989
United States - Revenues (\$m) - Percent	5,586 40	5,824 45	5,849 46
Europe - Revenues (\$m) - Percent	6,217 45	5,243 41	5,130 40
Other - Revenues (\$m) - Percent	2,108 15	1,876 14	1,763 14
<b>TOTAL</b>	<b>13,911</b>	<b>12,943</b>	<b>12,742</b>

## Exhibit F

## REVENUES: BREAKDOWN BY PRODUCT/SERVICE

YEAR	1991	1990	1989	1988	1987
Product sales - (\$ Millions) - Percent	8,299 60	8,146 63	8,190 64	7,541 66	6,254 67
Service and other revenues - (\$ Millions) - Percent	5,612 40	4,797 37	4,552 36	3,934 34	3,135 33
<b>TOTAL</b>	<b>13,911</b>	<b>12,943</b>	<b>12,742</b>	<b>11,475</b>	<b>9,389</b>

Exhibits G and H provide breakdowns of Digital's European software and services revenues by country and delivery mode.

### Exhibit G

#### REVENUE BREAKDOWN BY COUNTRY; DIGITAL INFORMATION SERVICES, EUROPE - 1991

COUNTRY	REVENUES (\$ MILLIONS)	PERCENT
France	395	11
Germany	740	21
UK	670	20
Italy	300	9
Netherlands	240	7
Belgium	105	3
Spain	120	3
Switzerland	275	8
Austria	135	4
Sweden	170	5
Denmark	45	1
Norway	40	1
Finland	105	3
Ireland	60	2
Portugal	35	1
Others	10	0
<b>TOTAL</b>	<b>3,450</b>	<b>100</b>

### Exhibit H

#### REVENUE BREAKDOWN BY DELIVERY MODE, 1991 INFORMATION SERVICES, EUROPE

DELIVERY MODE	REVENUES (\$ MILLIONS)	PERCENT
Software Products	890	26
Professional Services	510	15
Systems Integration	50	1
Equipment Services	1,990	58
<b>TOTAL</b>	<b>3,450</b>	<b>100</b>

INPUT conservatively estimates Digital's overall 1989 U.S. SI business at about \$333 million. INPUT's analysis suggest that a figure closer to \$1 billion may well represent Digital's Enterprise Integration Services group's worldwide revenues, which include revenues from non-U.S. operations and from professional services not included in INPUT's current definition of IS services. Digital's own estimate for 1991 is \$1.5 billion through this will include activity outside INPUT's definition of systems integration.

## Strategic Analysis

### (a) Company Direction

Digital claims a presence in four separate businesses where it offers:

- Commodity products that are standard in the industry and include PCs, UNIX workstations and servers, and a wide range of peripheral products. Digital is a member of the ACE initiative to ensure common standards across these systems.
- VAX systems that meet all common standards, are unique in that they do things other systems cannot do, and that are rapidly becoming directly price-competitive with UNIX machines.

This last year, Digital started shipping the VAX 9000 mainframe which was very well received. Digital is now extending its VAX 9000 line to include both less expensive and more powerful versions.

- Systems Integration, tying together the company's complete range of products - UNIX, VMS and MS-DOS - into simple or complex systems to provide complete solutions for customers. Digital also integrates software and hardware from other manufacturers.

Systems Integration is a growing and important business because Digital's customers normally want to buy a complete system that's guaranteed to do a job.

- A wide range of services to do all those things needed to complete the job for the customer. The company's service organisation designs and installs networks, integrates systems, runs complete information shops, supports standard PC software, runs networks of PCs, and provides all the services the customer wants, or needs after the equipment has been shipped. This business is growing and profitable and is key to the company's success.

Systems Integration is an important delivery channel for Digital's products and services and is recognised within the company as an area of high growth opportunity.

Digital, as a major minicomputer vendor, has been offering a systems-oriented (hardware and software) solution to its customers for many years. This sales position, coupled with its internal and custom software development activities, made the move into large-scale SI efforts a natural undertaking. Digital is aggressively pursuing SI business in the hundreds of thousands to multimillion-dollar range and see as competitors IBM, Andersen Consulting, and EDS. It competes with these vendors in both its government and commercial business pursuits.

In addition to Digital's general financial health, Digital's primary competitive advantage is its integrated computer architecture, which permits modular systems expansion and software compatibility across hardware/software platforms. In addition, Digital benefits from an extensive library of third-party and in-house-developed applications software and the growing use of its equipment in general-purpose departmental environments. Additional advantages include:

- An integrated office automation offering, All-In-One
- Sound fiscal management and an enthusiastic user community.

Digital continues to seek an increasing presence in the worldwide SI market; it accomplishes this by increasing the number of its target industries and increasing the scope of its strategic alliances.

Russ Gullotti, Digital's Vice President in charge of all of Digital's Corporate Services, including the Enterprise Integration Service (EIS) Group, announced in November, 1990, that Digital's objective in the SI market place is to become the "#1 world class systems integrator," that is, to be the leading systems and support integrator, encompassing the full range of business needs in an integrated, multivendor, enterprisewide environment.

As a result of this announcement, Digital clearly continues the shift in its approach to meeting its customers' needs from hardware and software solutions, to enterprisewide systems and services solutions. Likewise for the Digital EIS, SI services are no longer an adjunct to the sales and maintenance of computer equipment and software. SI services have become the primary focus of the organisation.

Against an SI industrywide growth forecast of not more than 20% per year, Digital EIS is planning on 25% growth.

Digital has increasingly broadened its IS services marketing strategy to include larger and larger projects in its worldwide markets. As a systems integration services vendor, Digital can propose combinations of Digital and other manufacturers' equipment and software in whatever combination best meets the clients' needs.

Digital has described its strategy very simply as the following:

- Build a foundation
- Target the market
- Develop service alliances
- Deliver globally.

Digital has built its foundation: the Digital EIS organisation. Digital has targeted its desired market: all vertical industries worldwide. Digital has developed a wide range of alliances with complementary services vendors that permit Digital to propose all required SI services. Digital now expects to grow through its performance in the worldwide SI market.

In addition, Digital's strategy is now to provide a complete solution within a vertical industry, rather than trying to compete for small pieces of many requirements. To this end, its strategic alliances form partnerships with services vendors who can help Digital provide complete solutions.

The ability to integrate multivendor environments into a single networked entity offering transparent application services is key to Digital's approach to systems integration.

Targeting industry sectors at a very detailed level is another key element of Digital's strategy.

(i) Consulting

In November, 1990, Digital EIS formed a new Consulting Services Business unit as a direct response to the demand for high-level consulting coming from Digital customers and as a key component in Digital's effort to enhance the business partnership with its customers.

Digital has over the last couple of years experienced a significant level of demand for consulting services. This has come about partly because its clients have recognised Digital's skills and experience in such areas as manufacturing, logistics and TQM and have sought access to that knowledge, and partly because Digital has been pro-active in developing some specific consulting services, notably *TOPMAP* for the strategic analysis of information services within organisations.

Digital offers a service called Technology and Organisational Performance (TOP) Consultancy. This service brings together managers from different parts of the user enterprise to work on business-driven, information-related issues which are urgent and have a definable pay-back, for example, to develop information-based strategies and action plans for introduction of a new product line, for linking communications among three new factories, and for coping with the cross-organisational requirements of an order fulfilment process.

During the two-day work session, the TOP consultant facilitates a highly interactive meeting which is owned by the participating managers.

Together Business Managers representing different organisational units and I.S. Managers look at ways they can use information technology to enhance overall performance of the enterprise.

The managers who participate in a TOP Consultancy work session

- 1) have all relevant knowledge to meet the desired outcomes of the session,
- 2) are motivated to find a solution,
- 3) have the power to design and implement that solution.

A work session focuses on an important process and ends with clearly defined next steps.

During the two days, the managers establish an agreed-upon business process by looking at the current situation and creating a picture of the future. While taking as given a set of business objectives, they link a supporting business process to an integrated information flow, so that they can eventually select and implement the appropriate information systems solution.

TOP consultants introduce a method designed by Digital called TOP Mapping which provides a common language for cross-functional exploration. The use of TOP Mapping in small groups encourages a sharing of ideas for joint understanding and the creation of a shared view; it provides a vehicle for bringing clarity into complex situations. TOP Maps are similar to topographical maps.

Digital has developed a set of symbols and conventions that allow managers to show how information flows within the organisation, and where there are obstacles in the flow and resulting business problems. By varying the scope of these information road maps, it is possible to depict the operation of a whole corporation, one division, a department or even a work group. Through these families of Maps, managers can develop cross-functional perspectives of their business processes and information flows.

When managers have finished their TOP Map, a transparent overlay is placed on it. With only five new symbols, a conceptual information system solution is placed on the TOP Map. The completed Map now permits a serious exploration of alternative solutions and planning for the implementation of computer-integrated systems which truly meet the needs of the business.

Over the past few years, Digital has invested significant amounts in hiring experienced consultants and professional services personnel from the Big 8 and other professional services companies whose primary business has been in the "solution" selling and delivery businesses.

(ii) Geographic Coverage

Digital has good coverage of both the U.S. and Europe. However to date, the bulk of Digital's systems integration activity has been based in the U.S.

(iii) Partnerships

In 1990, Digital EIS established its Digital Service Alliance (DSA) Program. Under the DSA Program, Digital enters into strategic alliances with other vendors whose capabilities complement Digital EIS' with respect to various potential clients' SI requirements. In addition:

- In January, 1988, Digital and Apple declared a joint venture that has subsequently provided a solid architecture linking their respective products.
- In 1990, Digital established a set of alliances with companies that have manufacturing consulting capabilities. Included among these are Deloitte Touche, A.D. Little, Andersen Consulting, Ernst & Young, and Price Waterhouse.

Digital EIS has entered into strategic alliances with other SI services vendors whose capabilities complement Digital EIS'; these alliance agreements also allow Digital EIS to respond to clients' solutions much more rapidly, eliminating the normal search time for matching skills and availability. Current strategic alliances are listed in Exhibit I.

Digital uses alliances in virtually all aspects of its SI business. Key alliances are performed within the Service Alliance Programme and are negotiated on a supplier-by-supplier basis. In Digital's own words, the programme is presented to the customer environment as follows: "Building the best solution for customer's enterprisewide project requires many components. Creating and delivering that solution may require the use of third parties."

The programme provides for formal relationships with leading service suppliers in selected technologies, industries, and application areas and it enhances the breadth, depth, and capacity of Digital total solution services. It conveys to customers that Digital can be the single source for their companywide service needs.

INPUT notes that Digital also has hundreds of alliances for applications software and other services.

### Exhibit I

**DIGITAL  
LIMITED SAMPLE OF SI ALLIANCES**

ALLIANCE	PURPOSE
Andersen Consulting	Distribution and Logistics industries
Apple	Computer-integrated manufacturing (CIM)
CACI, Inc.	CIM
CSC	CIM; Distribution and Logistics industries telecommunications
Deloitte and Touche	CIM; Discrete Manufacturing; Process Manufacturing
Ernst & Young	Health Care
A.D. Little	CIM; Chemical; Pharmaceutical industries
Morrison-Knudsen Engineering	Computer Integrated Manufacturing
Price Waterhouse	F&A; Process Industries; EDI
SHL Systemhouse	CIM
Other alliances may be formed on a project-by-project basis.	

In the CIM marketplace, Digital has joined with COMAU, the automatic production systems, robotics and industrial automation subsidiary of the Fiat Group, to set up SESAM SpA, to supply integrated automation systems for Europe's manufacturing industries.

Digital has strengthened its relationship with quality third-party suppliers by setting up Complementary Solutions Organisations (CSOs) - Application and Equipment OEMs who resell Digital's products, and Complementary Software Houses who write programs for Digital systems.

Digital has a partnership with Siemens to develop a broad range of products and technologies for the telecommunications market.

**(b) Strengths & Weaknesses**

Digital offers the full range of SI services. Consulting, design/integration, project management, hardware, communications products, systems software, etc. In particular Digital has a wide range of specific telecommunications-oriented SI capabilities. Its strong financial position and growing capability to understand the risk management associated with SI make it a credible competitor. INPUT evaluates Digital as follows:

- **Business Consulting** - At one time a weak area, Digital is investing significantly to increase its capabilities in this field. Its Enterprise Planning & Design Services are focused on enterprise planning and the identification of strategic opportunities. Partners and alliances are used in this area, but Digital continues a campaign to acquire this skill by hiring or allying with experienced practitioners to operate in both a marketing and a consulting capacity.
- **Design Integration** - Digital has established a reputation for being able to integrate its offerings with those of other computer hardware and communications equipment manufacturers. This is one of Digital's real strengths. In addition, the unified nature of Digital's own product architecture is an advantage. Integration at the network level is Digital's major strength.
- **Project Management** - INPUT believes that Digital has demonstrated strong skills in the project management area. Digital has also invested heavily in developing a programme management approach that should strengthen its capabilities in this area for jobs like the Boeing project.
- **Education, Training, and Documentation** - Digital has a highly developed system for education and training, and is probably better than most at being able to deliver this service flexibly.
- **Standard Computer Hardware** - Digital's integrated VAX/VMS architecture and workstation line give Digital a complete offering in the on-line applications systems market.
- **Communications Hardware** - Digital's line of communications equipment is targeted primarily at Digital proprietary environments. Digital, however, provides communications systems software that permits Digital systems to communicate effectively with almost all standard network environments.

- **Network Management and Operations** - Digital is a leader in managing worldwide networks and providing network management software. Although Digital has, in the past, dealt mostly with homogeneous Digital networks, INPUT believes that Digital's commitment to communications standards and its increasing presence in the SI market will force Digital to deal more often with heterogeneous communications networks.
- **Service and Repair, Software Maintenance** - This is another of Digital's strengths. Through its Vendor Equipment Services offering, Digital is servicing heterogeneous environments for 14,000 products and applications representing over 800 vendors.

Digital has a full array of capabilities to compete in the SI marketplace.

Major strengths are the breadth and depth of Digital's alliances and increased customer orientation. INPUT believes that Digital has shown itself to be capable of managing very large projects and of managing risk.

A former Digital weakness was a perceived lack of vertical industry expertise outside the scientific/technical areas. However, Digital's many alliances with partners that provide the needed expertise in other industries, combined with Digital's focused Digital Customer Centres, are overcoming this weakness.

Exhibit J summarises INPUT's current assessment of Digital's SI capabilities.

Exhibit J

INPUT'S EVALUATION OF DIGITAL'S SI CAPABILITIES

STRENGTHS	WEAKNESSES
Integrated VAX/workstation architecture	Perceived lack of ability in non-targeted vertical industries
Selection, acquisition, and maintenance of third-party equipment	
In-house technical expertise	
Geographic coverage	
Depth/breadth of alliances	

**(c) Conclusions**

Digital's strengths include its ability to manage projects involving distributed processing, networking, and communication across various vendors' processors. Network design and management capabilities are crucial to being a successful integrator; Digital scores high in this area.

Additional strengths include:

- Communications hardware and software products that enable Digital hardware to communicate with non-Digital computers
- Strong account presence through its worldwide service staff
- Financial strength, internal technical skills, and capability to manage larger-scale projects and their associated financial risks
- A rich portfolio of internally developed and third-party applications software product offerings.

Digital has few perceived weaknesses, other than a potential lack of objectivity in approaching the hardware and software component issues of the solution.

INPUT believes that Digital will continue to move toward a fully matrixed, decentralised, organisational structure for administration, sales, and marketing of its SI activities. In addition, INPUT anticipates that Digital will continue to target large-scale, international, and publicly visible SI projects to enhance the reputation of its Enterprise Integration Services offering, and initiate more aggressive education of internal field personnel to help promote the SI strategy.

**Strategic  
Assessment**

Digital, although one of the strongest system vendors operating on a world scale is having to face radical changes to its approach to the market driven by downsizing and the open systems challenge.

It is facing major issues of profitability and cost control as at the same time it attempts to resolve the conflict inherent in being simultaneously, a technology leader, a mass marketer of packaged system and major service company.

It is in the latter area where it is currently the weakest and its claim to derive approximately 45% of its revenues from services is largely based on its remedial equipment maintenance stream.

It is possible that their systems integration initiatives will be overridden by the momentum of the organisation's focus on medium systems packaged products. Consequently DIGITAL is considered an outsider to achieve a consistent long-term major player status in large scale systems integration contracting.



## COMPANY PROFILE

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### **DUN & BRADSTREET SOFTWARE**

3445 Peachtree Road, NE  
Atlanta, GA 30326  
United States  
Tel.: 1-404-239-2000

Chairman: John Imlay  
Status: Subsidiary  
Revenues: \$549 Million (FYE 31-12-31)

European Headquarters:  
Tour Franklin - Cédex 11,  
92042 Paris La Défense  
France  
Tel.: 33 1 46 92 5050  
Fax: 33 1 47 73 7711

INPUT LIBRARY

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### **The Company**

Dun & Bradstreet Software is the major subsidiary within the Software Services division of the Dun & Bradstreet Corporation. The complete list of subsidiaries within this division is as follows:

- *Dun & Bradstreet Software* produces and markets financial, human resource, materials management, manufacturing and higher education applications software worldwide for mainframe, midrange and personal computers. It also provides customers with a variety of maintenance services.
- *Sales Technologies* provides sales-force management software and services in the U.S. and Europe.
- *Erisco* provides employee benefits administration software and services.

Dun & Bradstreet Software was formed at the start of 1990 by merging McCormack & Dodge (M&D) - acquired in 1983 - and Management Science America (MSA), which was acquired at year-end 1989.

McCormack & Dodge and MSA were two of the market leaders in providing accounting systems on IBM mainframes throughout the 1970s and 1980s.

D&B Software successfully integrated the operations of M&D and MSA during 1990 and reported solid growth in revenue and operating income in 1990, compared with the combined results of the two companies in 1989.

In 1991, D&B Software, which contributed the majority of revenue to the Software and Services division, reported only a slight increase in revenues. Operating income decreased, reflecting, in part, investment spending on client/server-based products.

The company serves more than 12,000 customers worldwide, including 75 percent of the *Fortune* 500 companies.

### Key Products and Services

D&B Software specialises in applications software products covering:

- Accounting and finance
- Human resource management
- Manufacturing and logistics

Its software runs on hardware that includes IBM, Digital Equipment Corporation, Fujitsu, Tandem and ICL, though the traditional emphasis has been on IBM mainframe-based solutions.

D&B Software's applications include: a factory control and management system that regulates the manufacturing process; relational human resource payroll and personnel packages that provide customers with easy access to human resource information; a workstation development tool that allows customers to create applications for mainframe and personal computers; and a number of financial applications.

D&B Software has developed a strategy to guide the development of products and services that will meet short- and long-term customer needs. D&B Software will invest its resources in specific key areas. Product enhancements will focus on increasing the value of existing software for customers in terms of productivity and functionality. Value-added offerings will more fully utilise leading-edge technologies and strategic hardware platforms. These will be a foundation for future architectures, which will encompass open systems and provide consistent global functionality for future products.

In the future, D&B Software will concentrate on developing applications to run under SAA and UNIX client/server environments.

The company's general ledger product now runs using DB2, and versions of its other products - such as human resources applications - are being developed to take advantage of DB2.

One such product, developed in 1991, is Benefit Administration for DB2 - a software application for employee benefits administration based on IBM's relational database technology.

However, for the longer term, D&B Software is committed to investing heavily in applications for the client/server environment. In 1991, OS/2 2.0 IBM operating system support was introduced through client/server applications that will exploit the system's capability as a server.

D&B Software also offers consultancy, training and customer support services. It divides these activities into:

- Management Services: analysis and evaluation of business goals and formation of IS plan.
- Implementation Services: provides requirements, analysis, functional design, training and system tailoring to assure integration of products into a client organisation.
- Technical Services: provides technical expertise in system software, performance training, databases and the development of interfaces and enhancements.
- Educational Services: provides comprehensive education and documentation services that cover the life cycle of the system selected by the client.

**Financial  
Information**

As a wholly owned subsidiary of the Dun & Bradstreet Corporation, D&B Software does not publish separate accounts.

Exhibit A shows the financial summary for the Software Services Division as a whole. Accordingly, this includes revenues for its three subsidiaries:

- Dun & Bradstreet Software
- Sales Technologies
- Erisco

However, the overwhelming majority of these revenues are accounted for by D&B Software.

**Exhibit A**

**FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS)  
D&B SOFTWARE SERVICES (FYE 31-12)**

	1987	1988	1989	1990*	1991
Revenues	175	201	233	539	549
Annual Growth Rate (%)	14	15	16	131	2
Operating Income	7	13	35	41	36
Annual Growth Rate (%)	(22)	86	169	17	(12)

\* The 131% growth in revenues in 1990 reflects the acquisition of MSA, organic growth being 10.3%.

**Market Analysis****Exhibit B****1991 D&B MARKET ANALYSIS BY COUNTRY  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

<b>COUNTRY</b>	<b>REVENUES*</b>	<b>PERCENT</b>
France	70	23
Germany	43	14
U.K.	73	24
Italy	21	7
Netherlands	18	6
Belgium/Lux.	18	6
Spain	18	6
Switzerland	15	5
Austria	3	1
Sweden	6	2
Denmark	6	2
Norway	6	2
Finland	2	1
Ireland	2	1
Portugal	2	1
Greece	2	1
<b>TOTAL INFORMATION SERVICES</b>	<b>305</b>	<b>100</b>

\* INPUT estimate

INPUT estimates that the combined revenues of the D&B information services network and D&B Software generates 24% of European revenues from the U.K. and 23% from France.

Exhibits C and D show a breakdown of European software and services revenues by INPUT delivery mode and by industry sector, respectively.

## Exhibit C

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

<b>DELIVERY MODE</b>	<b>REVENUES</b>	<b>PERCENT</b>
Software Products	125	41
Professional Services	9	3
Network Services	171	56
<b>TOTAL</b>	<b>305</b>	<b>100</b>

## Exhibit D

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

<b>INDUSTRY SECTOR</b>	<b>REVENUES*</b>	<b>PERCENT</b>
Discrete Manufacturing	46	15
Process Manufacturing	21	7
Transportation	6	2
Utilities	6	2
Telecommunications	6	2
Retail Distribution	6	2
Wholesale Distribution	6	2
Banking & Finance	122	40
Insurance	21	7
Health Care	15	5
Education	6	2
Local Government	15	5
National Government	15	5
Business Services	9	3
Other	3	1
<b>TOTAL (Rounded)</b>	<b>305</b>	<b>100</b>

\* INPUT estimate

The banking and finance market is by far the most important customer sector for D&B, with approximately 40% of its revenues generated here.

## Company Strategies

### (a) Company Direction

D&B Software is aiming for an increase in performance in 1992, with mid to high single-digit revenue growth and strong growth in operating income. Performance is expected to be spurred by:

- Substantial growth in consulting services, which represent about 20% of D&B Software's revenue.
- Margin improvements as a result of increased productivity.
- D&B Software's first client/server based products, which are expected to be introduced mid-1992.

The company's long-term goal is to achieve double-digit growth in operating income, as a result of strong revenue and margin improvement.

D&B Software markets itself as a 'software partner' to its clients. It is focusing on researching and developing new technologies, refining and developing existing products and on enhancing its level of support and services.

### (i) Geographic Coverage

D&B Software offers its services to customers in 40 countries from over 60 offices, including a number of training, support and development centres worldwide.

### (ii) Partnerships

In 1991, D&B Software formed partnerships with fourth-generation language providers, Lognos and Powersoft, and also with Sybase to develop client/server applications for host computers, servers and workstations.

The company also has marketing and product development partnerships with major hardware vendors, including IBM, ICL, Digital, Hewlett-Packard and Data General.

In Italy, D&B Software Italia has a joint-venture agreement with Logica General Systems - LGS Soluzioni Gestionali.

Based in Milan, with a combined client base of more than 150 installations, LGS Soluzioni Gestionali offers all D&B Software products in addition to a locally developed information management system for receivables and payables called Clienti Fornitori (CLIFO) that was designed specifically for the Italian market-place.

### **(b) Strengths and Weaknesses**

D&B Software's strengths can be summarised as:

- Worldwide presence
- Strong customer base
- Established vendor
- Industry expertise

D&B Software has a strong geographic presence. The company operates through 60 offices worldwide and has customers in 40 countries.

D&B Software has an enviable customer base. Most of its customers are major corporate organisations and, according to the company, include 75% of the *Fortune* 500 companies.

The company consists of two established vendors that were both market leaders in providing accounting systems throughout the 1970s and 1980s. D&B Software possess a strong knowledge of and expertise in the financial and manufacturing markets where MSA and M&D have both traditionally operated.

The main challenge for D&B Software will be to successfully make the transition from a supplier of mainframe applications to one that can eventually deliver truly open applications. The company's large customer base has been targeted for the sale of client/server technology, and a measure of its ability to complete and deliver successfully in this area will be the retention of its large customers.

### **(c) Conclusions**

D&B Software is a leading supplier of financial and accounting software and of logistics and manufacturing software. The company is active worldwide through its subsidiaries and a number of distributors.

D&B Software is a result of a merger between MSA and M&D, two firms that had similar product offerings. D&B Software has successfully integrated the two operations and is now redefining its products to form an integrated suite.

Whilst the company's main applications were designed for mainframes and midrange systems, its development strategy is now focused on the client/server environment.

D&B Software remains committed to supporting and enhancing its existing product line, but at the same time is offering its client base a new generation of applications.

The company plans to deliver its new products gradually, allowing customers to migrate in their own time.

In addition to targeting its existing client base, D&B Software has agreements with Hewlett-Packard and Data General to sell the new software into their respective customer bases.

D&B Software's clients are largely major organisations, and it is hoped that these clients will continue to provide the majority of revenues. However, it is expected that the company will consider using other channels, such as value-added resellers (VARs), to sell to a wider market.



## COMPANY PROFILE

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### **EDS**

European Headquarters  
Geneva Executive Centre  
13 Chemin des Anemones  
1219 Chatelaine  
Geneva  
Switzerland  
Tel: 41 2 2795 0211  
Fax: 41 2 2797 3019

Group Executive - European Operations:  
Jurgen Berg  
Status: GM subsidiary  
European Software and Services Industry  
Revenue (FYE 31-12-91) \$720 million

U.K. Headquarters  
4 Roundwood Avenue  
Stockley Park  
Uxbridge  
Middlesex UB11 1BQ  
United Kingdom  
Tel: 44 81 848 8989  
Fax: 44 81 756 0130

MD: Clyde Ziegler

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### **The Company**

EDS was founded in 1962 and became an independent subsidiary of General Motors in 1984. It is a world leader in the supply of information technology services providing consultancy, systems development, systems integration and systems management to almost every market sector.

EDS currently has more than 7,200 clients in 28 countries worldwide and employs 70,500 staff.

EDS' largest client is General Motors Corporation (GM) and its subsidiaries, which contributed approximately 47% (\$3.4 billion) of EDS' 1991 worldwide revenue.

EDS and its subsidiaries were acquired by GM in October 1984 for approximately \$2.5 billion.

Through its work for GM, EDS has gained expertise in factory automation, strengthened its international presence and enhanced its communications expertise.

EDS' investment style is equity-for-business transactions, in which it typically injects money into a company in return for a facilities management contract. The company has practiced a growth-by-

acquisition strategy throughout its 30-year life, and is currently more active than ever along those lines.

### Organisational Structure

EDS is currently organised into strategic business units, which include the following:

- International and global industries (international means all countries outside North America)
- Manufacturing and distribution
- Government systems
- Financial services
- Insurance services
- Energy and petrochemicals.

EDS offers a broad spectrum of integration technology (IT) services. Its service model is shown in exhibit A.

#### Exhibit A

**EDS Services Model**

IDENTIFY	->	->	->	CREATE	->	->	->
DELIVER							
VALUE				VALUE			
VALUE							
CONSULTING	SYSTEMS						
	DEVELOPMENT	INTEGRATION		MANAGEMENT			

### Recent Acquisitions

In August 1991, EDS acquired SD-Scicon, the British computer services company, and its subsidiaries for \$265.7 million.

SD-Scicon was formed in 1988 by a takeover by SD (Systems Designers) of the far larger Scicon Group, previously owned by BP. SD was originally founded in 1969 and obtained flotation on the stock market in 1982. Scicon started operations in 1960 as part of CEIR (Corporation for Economic and Industrial Research) - U.S.

SD-Scicon offers the following services to an international client base:

- Systems integration
- Facilities management
- Consultancy
- Application products.

SD-Scicons's situation prior to EDS acquisition was as follows:

In the U.K., the seriousness of the problems in systems integration became clear during 1990 as the extent of the problems were identified by the new commercial management procedures. Urgent attention was paid to quantifying the extent of the problems, taking measures to ensure timely completion of the contracts, and putting in place procedures to reduce the risks on all such future business. 1990 revenue decreased by 10% to £256.5 million and the company reported losses of £19.8 million.

The cause of many of the problems was a rapid movement towards large, complex fixed-price contracts from 1987 onwards, led by public sector procurement policies. One example was the Foreign Office London Integrated Office System (FOLIOS), where a substantial refund was paid. The commitments were entered into as the software industry adjusted to these changes and competed to obtain business of a size and complexity not previously contracted on a fixed-price basis.

An improved management infrastructure to address the problems was put in place and new commercial, financial reporting and management systems were being installed by executives recruited from the contracting and engineering industries.

In the remaining U.K. businesses, the Consultancy and Facilities Management divisions were profitable, but the Products business was hard hit by the U.K. recession, particularly in the last quarter of the year. Steps had been taken to reduce costs in this area, but this part of the U.K. business is unlikely to make normal margins until conditions in manufacturing and retail industry improve.

During 1990, very substantial annual costs had been removed from the U.K. businesses. This was due to a combination of normal cost reduction measures as business levels declined during the year and, to a significant extent, the fundamental restructuring, involving the elimination of superfluous management levels, appointment of new divisional directors in a simpler business structure, and a rigorous policy of decentralisation. New decentralised financial systems were being installed in 1991 and there was increasing emphasis on training and modern professional management of human resources.

SD-Scicon had a number of subsidiaries, which are shown in Exhibit B. The most successful of these is GFI in France, which has a lead position in the systems operations market there.

## Exhibit B

## SUBSIDIARIES

SUBSIDIARY	PROPORTION OF SHARES HELD %	COUNTRY
SD-Scicon Europe Limited	100	U.K.
SD-Scicon U.K. Limited	100	U.K.
Groupe Francais d'Informatique SA (GFI)	100	France
GFI Techniques Bull SA	100	France
Charbonnages de France Informatique (CdFI)	51	France
SD-Scicon Inc.	100	U.S.
Systems Control Inc.	100	U.S.
Systems Designers Software, Inc.	100	U.S.
Secure Information Systems Ltd	49	U.K.
PS Groep BV	35	Netherlands
Vehicle Test Technology, Inc.	50	U.S.
Systems Control Technology, Inc.	49	U.S.

EDS also gained new customers, new products and entry into the aerospace industry with acquisition of McDonnell Douglas Systems Integration Company (MDSI) and the software distribution business of McDonnell Douglas Information Systems International. With MDSI comes Unigraphics, one of the leading CAD/CAM systems on the market today. Another popular MDSI product is the Graphic Data System (GDS), a CAD application especially suited for large-scale projects.

In 1992, EDS renamed the GFI subsidiary in France as EDS-GFI and SD-Scicon in the U.K. as EDS-Scicon. A 6% staff lay-off was recently announced by EDS-Scicon.

**Key Products and Services**

The activities of the company are classified as follows:

- Consulting Services
- Systems Development
- Systems Integration
- Systems Management.

**Consulting Services** - EDS evaluates current and prospective customer needs in conjunction with industry trends to offer solutions that may include IT systems, management or workflow analysis.

**Systems Development** - EDS designs, develops and installs new information processing systems, or additional features for existing systems, in each case in accordance with customer specifications.

**Systems Integration** - EDS selects appropriate technologies and builds technical interfaces to construct an integrated system that may include software, hardware, networking, support and maintenance.

**Systems Management** - EDS assumes customer IT operations, including equipment, people and information processing functions. Under a typical arrangement, the customer controls the scope of the work that will be performed as well as the delivery schedule. EDS continues to provide day-to-day operations expertise and support for the customer.

EDS can provide IT services to its customers either at customer sites or through one of its 21 information processing centres located worldwide. Data transmission and communication requirements are provided through the EDS digital communications network, EDS Net, which EDS believes to be one of the largest digital telecommunications networks in the world, other than common carrier or government networks.

**Financial  
Information**

On a worldwide basis, EDS' total 1991 revenue reached \$7.1 billion, a 16% increase over 1990 revenue of \$6.1 billion. Net income rose 10%, from \$497 million in 1990 to \$547 million in 1991.

**Exhibit C****EDS FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS) (FYE 31-12)**

YEAR	1987	1988	1989	1990	1991
Revenue (\$M)	4,427.7	4,844.1	5,466.8	6,108.8	7,099.0
Annual Growth Rate (%)	1%	9%	13%	12%	16%
Profit before Taxes (\$M)	524.3	589.4	680.3	788.7	893.7
Annual Growth Rate (%)	13%	12%	15%	16%	13%
Profit after Taxes (\$M)	323.1	384.1	435.3	496.9	547.5
Annual Growth Rate (%)	24%	19%	13%	14%	10%

**Market Analysis****Exhibit D****WORLDWIDE MARKET ANALYSIS BY CLIENT BASE (\$ MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Systems and operating contracts					
· Outside customers	1,444.8	1,907.6	2,384.6	2,787.5	3,666.3
· GM + subsidiaries	<u>2,883.3</u>	<u>2,837.0</u>	<u>2,988.9</u>	<u>3,234.2</u>	<u>3,362.2</u>
	4,328.1	4,744.6	5,373.5	6,021.7	7,028.5
Interest and other	99.6	99.5	93.3	87.1	70.5
<b>TOTAL</b>	<b>4,427.7</b>	<b>4,844.1</b>	<b>5,466.8</b>	<b>6,108.8</b>	<b>7,099.0</b>

Approximately 47% (\$3.4 billion) of EDS' total 1991 revenue was derived from its parent company, GM, and 1% was derived from interest and other. The remaining 52% (\$3.7 billion) of total revenue was derived from clients in various industries, including banking and finance, insurance, manufacturing, retail, distribution, transportation and energy.

## Exhibit E

## 1991 MARKET ANALYSIS BY GEOGRAPHIC REGION (\$MILLIONS)

REGION	REVENUES* (\$ MILLIONS)	PERCENT	OUTSIDE CUSTOMERS (\$ MILLIONS)	PERCENT
U.S.	5,626.6	80	3,006.4	82
Europe	959.5	14	457.9	12
Other	442.4	6	202.0	6
<b>TOTAL</b>	<b>7,028.5</b>	<b>100</b>	<b>3,666.3</b>	<b>100</b>

\* Total revenues for each region incorporating both GM revenues and external revenues but excluding interest. In 1991, 12% of outside revenues were derived from Europe.

INPUT estimates the consolidated European Software and Service revenues of EDS and SD-Scicon were \$720 million in 1991.

## Exhibit F

1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN INFORMATION SERVICES

GEOGRAPHIC MARKET	REVENUE* (\$ MILLIONS)	PERCENT
France	302	42
Germany	25	3
U.K.	294	41
Spain	19	3
Sweden	4	1
Netherlands	17	2
Belgium/Luxembourg	20	3
Other Europe	39	5
<b>TOTAL INFORMATION SERVICES</b>	<b>720</b>	<b>100</b>

\* INPUT estimates.

## Exhibit G

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES**

INDUSTRY SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Discrete Manufacturing	145	20
Process Manufacturing	130	18
Utilities	70	10
Telecommunications	20	3
Retail Distribution	20	3
Banking and Finance	125	17
Insurance	30	4
Health Care	35	5
National Government	145	20
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>720</b>	<b>100</b>

\* INPUT estimates.

## Exhibit H

**1991 MARKET ANALYSIS BY DELIVERY MODE FOR EDS  
(USING INPUT CLASSIFICATION)**

DELIVERY MODE	REVENUE* (\$ MILLIONS)	PERCENT
Processing Services	85	12
Network Services	20	3
Software Products	60	8
Professional Services	170	23
Systems Operations	235	33
Systems Integration	100	14
Turnkey Systems	50	7
<b>TOTAL</b>	<b>720</b>	<b>100</b>

\* INPUT estimates.

**Company  
Strategies****(a) Company Direction**

EDS aims to bring value and strategic advantage to its customers and to be recognised as the premier provider of IT services for companies and government around the world.

EDS sees diversity as a catalyst for long-term growth. The company is basing its future on delivering services to clients across a growing spectrum of industries. Quality will be a key customer issue throughout the 1990s and beyond. EDS believes that as competition in the global marketplace intensifies, customers are defining quality. And only those companies that meet that definition and are customer-driven will thrive.

To continue to compete successfully, EDS is responding to the changing business environment by transforming its culture. The company is empowering those closest to the customer to make decisions that lead to customer satisfaction. It has also established a set of guiding principles and practices that lay the foundation for continual quality improvement across the entire company.

**(b) Strengths and Weaknesses**

EDS' main strengths can be summarised as follows:

- Global presence
- Strong systems operations and systems integration skills
- Strong management team
- Strong acquisition strategy
- Ability to secure large contracts.

EDS' primary strength lies in its geographical presence. The company operates worldwide, has 7,000 customers in 30 countries and has recently strengthened its global customer base through a number of acquisitions and strategic agreements.

EDS possesses strong systems operations and systems integration skills, which it has enhanced significantly, particularly the latter, with its recent acquisition of SD-Scicon and its diverse European customer base.

EDS is fortunate in that it possesses a strong management team that can successfully drive company strategies and provide the long-term commitment required. An example of this is the company's target account strategy, where organisations were singled out as prime target accounts capable of contributing significant revenues to EDS. The company invested the resources and time necessary, in some cases years, to secure these targeted organisations as clients.

EDS' management team has a good track record in making successful acquisitions. The company has practiced a growth-by-acquisition strategy throughout its 30-year life, and is currently more active than ever along those lines. EDS claims to have a very positive attitude to acquired staff, viewing them as an asset and has a very good track record of exploiting this asset. The company's whole life has been based on this strategy.

EDS has the enviable ability to secure large contracts particularly in the areas of systems integration and systems operations. The company is an established vendor in both markets with a reputation for technical expertise. Also, the company's GM parentage has enhanced its financial stability, a key asset when tendering for large facilities management projects.

EDS is viewed as a technical expert. The company's focus is on setting itself as a strategic adviser on its clients' IT investments.

Within the last year, EDS has become one of the top 10 software and services players in the European market. SD-Scicon was, in the true sense of the word, a 'strategic' acquisition for EDS - strengthening substantially its presence in Europe, a prime target area for growth. However, EDS' coverage of Europe is not as extensive as other leading vendors, and the company needs to make further acquisitions to establish a strong pan-European base.

As well as the need to continue its European expansion, EDS faces a challenge in moving itself away from its image of a technical supplier to its desired position of a 'business process enhancer', improving its customers business operations through IT.

EDS sees its business advisory role as its differentiator from traditionally technical vendors and processing services companies. The main challenge for the company will be to capitalise on this strategy and build a reputation such as Andersen Consulting or Price Waterhouse as a strategic consulting and technology business.

### **(c) Conclusions**

EDS, through its European subsidiaries, is one of the leading IT services suppliers in Europe, with operations in 17 countries.

EDS in Europe offers the full range of core activities and provides services and products to an international client base. Vertical market groups specialise in particular sectors, which include process and discrete manufacturing, oil and petrochemicals, utilities and transport, and government and defence. Cross-industry groups provide technical consultancy, communications, facilities management, software products and training.

The success of EDS as a manager of IT service businesses can be measured by its 14-year record of increased profitability.

In 1991, revenues increased 16% to \$7.1 billion with profit before tax reaching \$894 million, an increase of 13% over the previous year. However, a significant portion of this revenue can be attributed to the acquisition of SD-Scicon and McDonnell Douglas Systems Integration.

### **(d) Strategic Assessment**

EDS has strengthened its European presence and expanded its capabilities through its acquisition of SD-Scicon and its subsidiaries. The company now represents a significant competitive threat to the leading European independent vendors.

SD-Scicon has added a number of prestigious European organisations to the EDS client base. Clients include the U.K. Ministry of Defence, British Aerospace Australia Limited, and the European Space Agency.

What SD-Scicon brings to EDS is expertise in consulting, systems development and facilities management that neatly complements EDS' traditional skills and significantly improves its ability to serve European customers. EDS can now approach any corporation of any size in any area and provide greater value and competitive advantage.

EDS also broadened its customer base with the acquisition of McDonnell Douglas Systems Integration Company, enabling it to enter the aerospace industry, where the potential for new or expanded business with existing MDSI customers is strong.

The strength of EDS and its future success lies in its ability to form long-term strategic relationships with clients. Continued success over three decades results from the ability to combine a breadth of advanced technical knowledge and skilled large-scale project management with extensive experience in clients' own business sectors and an understanding of their strategic business needs.

## COMPANY PROFILE

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### **ENATOR AB**

Farogatan 7  
Box 1213  
164 28 Kista  
Sweden  
Tel.: 46 8 703 6200  
Fax: 46 8 750 6394

President: Jerry Lundquist  
Status: Public  
Revenue (FYE 31-8-92): SEK 717.2 Million

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### **The Company**

On October 5, 1990, Enator AB (1990 revenues: SEK 624.9 million and 1,274 employees) merged with Modulforetagen Data AB (1990 revenues: SEK 353.2 million and 440 employees) and now operates under the name of Enator. Enator is a subsidiary of PRIAB AB and is the parent company of a group of companies in Sweden, Denmark, Norway, Finland, Germany and England. Enator AB's business consists of the administration and co-ordination of group affairs.

Turnover for the group rose 12 percent to SEK 1,097 million in 1990. Profits of SEK 28 million were burdened with extraordinary costs in connection with the merger and the disposal of non-compatible activities.

In 1991, Enator reported turnover of SEK 1,009 million and losses of SEK 85.7 million. As a result, Enator undertook a restructuring programme to improve the efficiency of operations. Substantial parts of the operations in the Knight Nord and Educator subsidiaries have been discontinued.

Also, the number of operating companies in Finland was reduced from eleven to four, and personnel was reduced by approximately 20 percent.

Enator's activities are focused on consulting, facility management, training and products.

In 1987, Enator became a wholly owned subsidiary of Pronator and was withdrawn from the stock exchange after four years as a quoted company. In June 1989, in order to finance its development, Enator was reintroduced to the OTC list of the Stockholm Stock Exchange.

## Organisational Structure

Since the merger, operations are conducted in six business areas:

- Enator Information Systems
- Enator Technology
- Knight Industrial Consultants
- Enator Facility Management
- Enator International
- Enator-ryhma

### Exhibit A

#### KEY EXECUTIVES

NAME	POSITION
Jerry Lundquist	President
Mats Alders	Financial Director
Peter Lindgren	MD, Enator Information Systems
Christian Davidsson	MD, Enator Technology
Hakan Wallin	MD, Knight Industrial Consultants
Tommy Collin	MD, Enator Facility Management
Kalevi Vuoksima	MD, Enator-ryhma Oy
Jorgen Staal	MD, Enator Danmark A/S
Sophus Lie-Nielsen	MD, ISI AS
Volker Puke	MD, Enator Deutschland GmbH

Enator shares are traded on the OTC list of the Stockholm Stock Exchange. The number of shareholders in March 1991 was approximately 2,100.

## Exhibit B

## MAJOR SHAREHOLDERS

NAME	CAPITAL	VOTES
PRIAB	42.8	66.1
IBM Svenska AB	19.8	11.1
Repola OY	7.5	10.4
Jerry Lundquist	0.3	1.3
Skandia	3.3	1.2
Nordbanken Mutual Funds	2.5	0.9
Others	23.8	9.0

Enator AB has the following subsidiaries:

## Exhibit C

## SUBSIDIARIES

NAME	COUNTRY	% OWNED
Enator A/S	Denmark	100
Enator-ryhma Oy	Finland	100
ISI AS	Norway	100
Enator GmbH	Germany	100
Enator Information Systems (formerly Enator AB)	Sweden	97
Konsultgruppen Merit	Sweden	100
Data Assistans Ternum	Sweden	100
Enator Applikations System (formerly ASKAB)	Sweden	100
Enator-ryhma (formerly Modul-ryhma OY)	Finland	100
Modulforetagen Open Systems	Sweden	100
Modulforetagen Uppsala	Sweden	100
Modulforetagen Teknik	Sweden	100

## Exhibit C (Continued)

Modulforetagen Produkt	Sweden	100
Enator Piadata (formerly Modulforetagen PIA-data)	Sweden	100
Modulforetagen Rutinkonsult	Sweden	100
DILAB	Sweden	100
Moduldata	Sweden	100

In 1990, Enator employed an average of 1,655 staff.

## Exhibit D

## 1991 EMPLOYEE ANALYSIS

COUNTRY	NUMBER OF EMPLOYEES*
Sweden	1,171
Finland	162
Norway	117
Germany	71
Denmark	50
<b>TOTAL</b>	<b>1,571</b>

\* Approximate number

## Acquisition History

### 1989 Acquisitions:

AB Knight - a company specialising in the manufacturing industry was acquired in January.

ISI AS - a large Norwegian computer consultancy with 100 employees was acquired.

Rowika AB - a supplier of PC equipment and software products was acquired.

**Divestments:**

In 1991, Enator sold Rowika AB and two other companies, Enator Kunskapssystem and Enator System.

Corda AB - a company that sells administrative systems and consultancy was acquired.

During 1989, Enator also formed a number of trading companies:

Enator Technoc - offering services related to technical documentation.

Enator Ekonomi & Finans - offering services within the accounting and finance areas.

A joint venture was formed with the municipality of Uppsala.

Synator Oy - was formed in conjunction with a Finnish associate. The company operates within the CAD/CAM and MPS markets.

**Key Products and Services**

Enator is organised into six business areas:

- Enator Information Systems
- Enator Technology
- Knight Industrial Consultants
- Enator Facility Management
- Enator International
- Enator-ryhma Oy

**Enator Information Systems (EIS)**

EIS is the largest business area in the Enator Group with around 520 employees. Services include both consultancy and product sales.

EIS's business strategy is based on offering the market a range of services and products in the information processing sector, with the aim of increasing the efficiency and competitiveness of its customers.

EIS was established following the merger of Enator and Modulforetagen. EIS, today, is made up of three business groups, two regional subsidiaries and one specialist subsidiary.

The Industry and Services business groups offer consultancy services, while the third business group markets systems and products. Enator Vast AB and Enator Syd AB are the regional units, and Educator AB is the specialist subsidiary.

In 1991, substantial parts of the Educator operations were discontinued.

Consultancy is divided into subsidiaries and consultancy groups to suit the market, which is primarily Swedish industry, the financial sector, banking, insurance, trade, distribution and transportation. Services cover the area of administrative information systems. The regional subsidiaries aim to cover the whole of their particular markets with a similar range of services. Educator AB, the specialist subsidiary, provides training, documentation and translation services, rounding out the services offered by the other subsidiaries.

The Systems and Products business group markets systems based on IBM AS/400, IBM RS/6000 and IBM PS/2 hardware, all equipped with administrative software systems. The business group also markets system development tools and system software for UNIX, VMS and IBM environments. The ability to supply all-inclusive systems is provided via a number of consultants.

Main competitors in the consultancy sector are CAP Programator and WM-data. In the product sales sector, IBS, Kalldata, Entra Data and Hogia Data are the main competitors.

### **Enator Technology**

The merger between Enator and Modulforetagen had no effect on the Enator Technology business area, since Modulforetagen had not been active in any similar field. The business area is divided into nine subsidiaries, each responsible for a specific sector. Enator Technology has four basic operational sectors:

- General Electronics
- Defence Electronics
- Telecommunications
- Mobile Radio

Enator Technology claims that it is the largest company of its kind in Sweden. The company develops software and equipment as a subcontractor to the high-technology electronics industry. In 1989, it started contacting the end user directly as main contractor.

An expansion of services offered by Enator Tekniksystem AB includes rail-based transport systems.

Enator Technology's business concept is, on the basis of computer technology, to offer services, products and systems that satisfy its customers' expectations and meet their business needs. The short-term goal is expansion, mainly in defence electronics, telecommunications, air traffic control and automatic train control systems. Two substantial base sectors are also expected to continue to expand: general electronics and mobile radio. The development of GPS (Ground Positioning Systems, i.e., systems for satellite navigation) also offers attractive opportunities.

Companies in the Ericsson sphere, together with Bofors Electronics, IBM and ABB Group companies, rank among Enator Technology's most important clients. The biggest competitors are Enea and Frontec, of the CAP Programator Group.

A small number of customers, including Ericsson, Nokia, Bofors and IBM, account for the majority of Enator's technology revenues.

### **Knight Industrial Consultants**

At the beginning of 1990, five Knight companies formed part of the Enator Industry business area. Restructuring of operations in late 1990 transformed Knight into a separate business area within the Enator group. Knight Industrial Consultants today operates via its subsidiaries, each with separate regional responsibilities.

Turnover for Knight in 1990 was just over SEK 67 million (1989, SEK 169 million) and a deficit of SEK 1 million (1989, surplus of SEK 13 million). The decline, in combination with restructuring of operations partly to reduce dependence on the Swedish automotive industry, accounted for the adverse trend of profits relative to the preceding year. Enator decided to withdraw from the automotive industry as a priority, resulting in the sale of the Caran companies and closure of other companies.

Knight Industrial Consultants aims to offer industry a range of top-level services in the field of product and production development. The company serves large and medium-sized Swedish industrial companies, chiefly in the engineering sector. Clients include ABB, Bofors, Hagglunds, Tetra Pak, Flakt and SAAB. Competition for major projects is intense, but is presented by a small number of companies, including Ferator, Alfredeen-Rako, PG-Gruppen, Semcon and the AF Group.

Knight's ambition is to develop into one of the leading consultancy businesses in the industry, with a market share of about 15 percent in each of the local markets.

In 1991, substantial parts of the Knight operations were discontinued.

## **Enator Facility Management**

This division comprises two companies: Modulforetagen Teknik AB and Enator PIADATA AB.

Enator PIADATA is a market leader in the newspaper industry, catering to the needs of the press for systems, development skills and computerized resources in distribution and sales. It is also a service agency and caters to other markets by supplying computerized resources as well as services and products in the personnel and wage-processing sector. Enator PIADATA can assume full responsibility for customer applications, including development, management, data production and communication.

Modulforetagen Teknik's services focus primarily on organizations and companies using IBM mainframe equipment. In this field, the company offers consultancy and training expertise in operating and systems technology, data communications, systems development/CASE, project management and analysis.

Enator Facility Management offers a computerised resource service, communication systems, operating services, technical consulting, and development and management of computer systems on behalf of big companies. The business area also operates a developed training service. It also provides facilities for linking together customers and suppliers via networks to facilitate, for example, faster cash flows.

Major clients for technical services include SJ (Swedish State Railways), the Wasa and Skandia insurance companies, LM Ericsson, the Central Bank of Sweden and the Swedish Credit Information Centre.

Enator PIADATA's biggest customer is PRESAM, while other major clients in the newspaper distribution sector include the Expressen, Svenska Dagbladet and Aftonbladet newspapers. The company mainly serves large companies with more than 500 employees and large volumes of transactions, for which management and development of programs and systems is required on a continuous basis.

The main competition is represented by the following companies: CAP Programator, Sapia and DAFA.

In 1990, Enator Facility Management signed a three-year agreement with PRESAM, the joint distribution organisation for the Swedish newspaper industry, representing revenues of SEK 35 million per year.

**Enator International**

This division offers consultancy and processing services to clients outside Sweden. This division is responsible for all cross-border projects.

International operations, with the exception of Finland, used to be a single business area. In early 1991, the organisation was modified to comply with the vision of the Nordic region as Enator's domestic market. Enator Danmark A/S (Denmark), ISI AS (Norway) and Enator-ryhma Oy (Finland) have been placed on the same footing as the four Swedish business areas.

Enator Deutschland GmbH is undergoing the same process. The aim is to be one of the three leading companies in the markets for their designated business areas.

While Germany achieved its targets for 1990, each of the other countries reported a negative deviation from targeted profit figures. Results were sharply influenced by declining markets, particularly in the U.K.

**Enator-ryhma Oy**

Following the merger, the four corporate units making up the Finnish operations of Modulforetagen were incorporated into Modul-ryhma Oy, which also included Enator Project Management Oy and Oy Synator Ab from Enator's Finnish operations. In addition, a software company, Softrex Oy, was acquired and integrated into the group.

The company was renamed Enator-ryhma Oy with effect from 1 January 1991. In 1990, turnover totalled SEK 136 million, compared to SEK 131 million in 1989. Profits of SEK 2 million were reported (1989, SEK 11 million). The decline was attributable to lower profits from the computer operations business.

Enator-ryhma's main competitors include CAP Programator, WM-data, Arthur Andersen and Tietotehdas.

**Financial  
Information**

The following exhibit is a financial summary of Enator's operations before the merger with Modulforetagen.

**Exhibit E****FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (SEK MILLIONS)**

YEAR	1986	1987	1988	1989	1990
Revenue	178.5	232.6	269.2	508.7	624.9
Annual Growth Rate (%)		30	16	89	23
Profit before Taxes	21.7	40.0	8.9	4.3	67.3
Annual Growth Rate (%)		84	-78	-52%	++
Profit after Taxes	17.4	22.4	3.7	0.3	35.4
Annual Growth Rate (%)		29	-83	-92	++
EPS (SEK)	2.2	3.0	2.0	4.1	6.1

Exhibit F is a two-year financial summary for Enator after the merger.

**Exhibit F****TWO-YEAR FINANCIAL SUMMARY (FYE 31-8)**

	1990/1991	1991/1992
Revenues	1,008.9	717.2
Annual Growth Rate (%)	-	(29)
Profit before Tax	(85.7)	(4.8)
Annual Growth Rate (%)	-	(94)

**NOTE:** Enator changed its financial year end from 31-12 to 31-8 in 1992. The decrease in revenue was attributable mainly to divested units.

## Market Analysis

## Exhibit G

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

COUNTRY	REVENUE	PERCENT
Sweden	82	74
Finland	13	12
Norway	8	7
Denmark	3	3
Germany	4	4
<b>TOTAL</b>	<b>110</b>	<b>100</b>

INPUT estimates that \$110 million of revenue came from software and services activities in 1991.

## Exhibit H

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES	PERCENT (ROUNDED)
Discrete Manufacturing	30	29
Process Manufacturing	15	14
Transportation	5	5
Utilities	5	5
Telecommunications	5	5
Retail Distribution	5	5
Wholesale Distribution	5	5
Banking and Finance	5	5
Health Care	5	5
National Government	10	10
Business Services	5	5
Other	10	10
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>105</b>	<b>100</b>

## Exhibit I

**1991 MARKET ANALYSIS BY INPUT SERVICE MODE (\$ MILLIONS)**

INPUT SERVICE MODE	REVENUE*	PERCENT
Processing Services	15	14
Turnkey System	5	5
Applications Software Products	5	5
Systems Software Products	5	5
Professional Services	65	62
Systems Operations	10	9
<b>TOTAL</b>	<b>105</b>	<b>100</b>

\* INPUT estimates

**Company  
Strategies****(a) Company Direction**

The company has reconsidered and altered its strategies. It has laid out a new direction and closed a number of operations that were consuming too many resources and taking too long to produce satisfactory profitability. Enator has now identified its core business by concentrating on six activities:

- Administrative consulting - on applications in the service and industrial sectors
- Technical consulting - focusing on advanced product and system development
- Industrial consulting - offering industry a range of tools for product and production development
- Product-based activities - comprise sales of hardware and software for program development and applications
- Training - covers the needs of system users, system developers and project leaders
- Facility management - offers data processing resources for systems operations and maintenance, together with related consulting services

Enator's business concept is based on offering the market top-level services and products in the information processing sector, as well as product and production development services and expertise in the area of corporate management.

The Nordic region is Enator's domestic market. Enator Germany will remain, partly to serve as a bridge into the EC.

Another strategic adjustment is to give profitability first priority, ahead of growth and volume. Substantial savings were achieved during 1991-1992 as a result of conservative investing, pay-roll adjustments and new hirings.

*(i) Consultancy*

Enator has a strong consultancy capability within Enator Information Systems, which comprises the consultancy skills of both Enator and Modulforetagen. The consultancy activity is primarily focused on the Swedish market.

*(ii) Geographic Coverage*

Enator intends to focus its attention on the Nordic countries and also increase its operations in Germany, which will be its most important international market. In 1991, INPUT estimated that approximately 74% of software and services revenue was derived from Sweden.

**(b) Strengths and Weaknesses**

The group offers expertise in a wide range of fields. The company has particular strengths in the industrial and service sectors (through Modulforetagen) and in the manufacturing and transport sectors (through Enator).

The main challenge for Enator in 1992-1993 will be to return to its premerger level of profitability in an unstable economic climate amidst increasing competitive pressures. The company has also had the added pressure of restructuring and redirecting the organisation, and synergising management capacity. After the merger, Enator in its new form lost its momentum, but the company is confident that its new strategic direction will prove successful.

**(c) Conclusions**

Enator will continue to focus on the Nordic region, which it classifies as its domestic market. The company has chosen to focus on safety and improve profitability from its core activities. Enator will not develop any service or any specific area of expertise, if in its refined form, it does not fit in with the Nordic market. All future areas that Enator chooses to focus on will be developed and marketed for the Nordic region.

INPUT expects that by discarding its non-profit-making subsidiaries and concentrating all its efforts on its core activities, Enator will achieve its aim to be perceived as a company with a strong base in the Nordic region and will continue to improve profitability.

## COMPANY PROFILE

### ERITEL

Pº de la Castellana, 141  
Edificio Cuzco IV  
28046 Madrid  
Spain  
Tel.: 34 1 348 11 00  
Fax: 34 1 579 10 74

Executive Chairman: Jaime Sodupe Roure  
Number of Employees: 1,903  
Revenue 1991: Ptas 18.6 Billion

### The Company

Eritel was formed in 1990, the result of a merger between the two Spanish software and services companies Eritel and Eria.

Eritel has a number of shareholders, which are shown in Exhibit A.

#### SHAREHOLDERS

SHAREHOLDERS	PERCENT OWNED
Inisel (Instituto Nacional de Industria)	51
Telefónica de Espana	39
BBV Banesto Central Hispano CAP Gemini Sogeti	10
<b>TOTAL</b>	<b>100</b>

Eritel achieved 1991 revenues of Ptas 18.6 billion and employs 1,903 staff.

Eritel divides its business activities into:

- Consultancy
- Systems Integration
- Systems Engineering
- Data Processing Services/Facilities Management
- Training

# INPUT LIBRARY

The company focuses on the following vertical markets:

- Finance
- Industry
- Public Administration
- Telecommunications

## Organisational Structure

### Exhibit B

#### MAIN SUBSIDIARIES

COMPANY	PERCENT OWNED
Ibermatica	39.00
Seinca	13.62
Sadiel	8.83

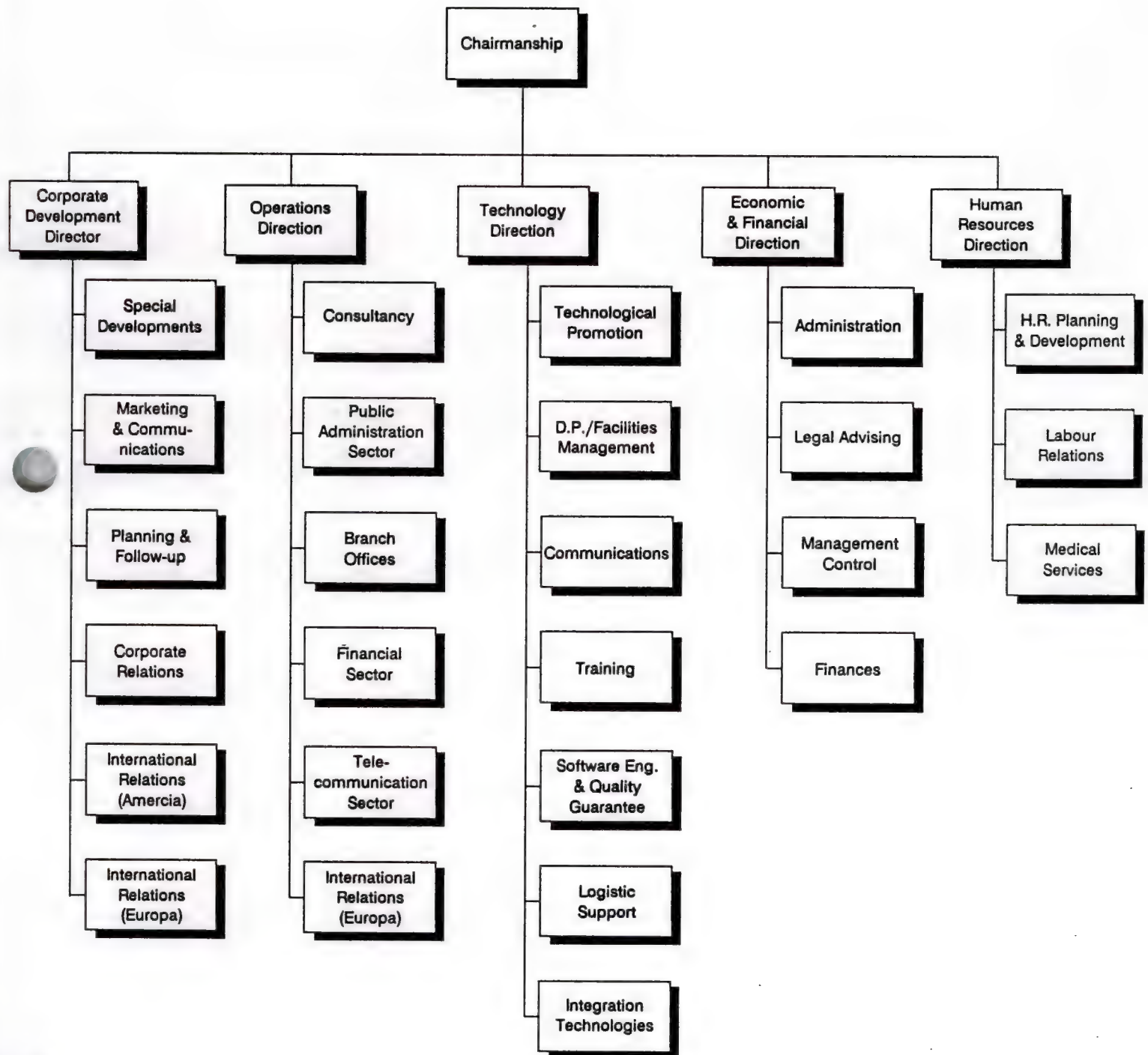
- Ibermatica specialises in software development and data processing for savings banks.
- Seinca provides systems engineering and data processing services to banks.
- Sadiel was founded to encourage computerised development in Andalucia.

During 1991, Eritel has been responsible for managing Central Informatica, a company with a turnover of Ptas 1,250 million and employing some 147 staff.

From 1992 onwards, Eritel has geared Central Informatica's activities towards software development and technical support services. Eritel expects to acquire 100% of Central Informatica's share capital by the end of 1992.

Eritel's organisational structure is show in Exhibit C.

## Exhibit C



**Major Recent Projects**

Examples of projects undertaken by Eritel in 1991 include:

- Designing and installing a complex mining maintenance system for the National Electricity Company.
- Development of an airline reservation system for IBERIA.
- Preparation of functional specifications and logical data models for the factory control system at Tetra Park.
- Development of a provisional vote count system for elections for the Spanish Ministry of the Interior.
- Creation and implementation of a videotex information system for the Extremadura Council.
- Development of an integrated system for logistic management (SIGLE) for the Spanish army's headquarters.

**Key Products and Services**

Eritel's current offerings are structured around the following core activities.

**Consultancy**

Eritel divides its activities into two categories.

- Organisation Consultancy
- Information Systems Consultancy.

1991 consultancy projects included a computing security diagnosis for the data processing centres of Astillenos Españoles and design of administration procedures for the marketing of bulk gas for Repsol Butano.

**Systems Integration**

Eritel sees systems integration as one of its key activities. Its approach is to supply turnkey solutions that are capable of satisfying customer requirements, regardless of the technical or functional complexity.

**Systems Engineering**

Eritel designs, develops and installs applications and information systems across all industry sectors.

### **Data Processing Services/Facilities Management**

Eritel offers data processing services as well as back-up services and facilities management both on and off client sites and also provides a disaster recovery service.

### **Training**

Eritel divides its training business into two activities. The first is an advisory service to management on current technologies and their effect on improvement of business management and profitability. The second is training users.

### **Technologies**

1991 Eritel assigned 9% of its turnover to research and development. It is a special technology unit that has the purpose of ensuring the incorporation of the most advanced and most appropriate technologies into the systems developed for customers. At present, the unit is working in the following areas:

- **Knowledge engineering:** Eritel has developed a series of solutions centred on areas of planning and utilisation, control and incident solving systems; support systems and decision making; and diagnostic and sorting systems with modules for tutor-assisted learning.
- **Communications:** Eritel is concentrating on the development of communication systems. The company activity is primarily aimed at the interconnection of heterogeneous systems.
- **Control systems:** Eritel is focusing on the development of real-time automation and control techniques for different industrial, environment-related logistic processes.
- **Statistical systems:** Eritel is developing specialised products and services for statistical data analysis.
- **Multimedia solutions:** The company focuses not only on research and development of basic techniques, but also on the development of applications and solutions configured by means of integrating voice, data, text and image systems.

Eritel is currently involved in a number of European research and development projects, including the BD11 project for the Eureka programme, the equator project for the Esprit programme, and is also involved in Euromethod (Phase III) - the project to develop methodology for planning, developing and running standard information systems for countries in the European Community.

# Financial Information

## Exhibit D

### TWO-YEAR FINANCIAL SUMMARY (PTAS MILLIONS)

	1990	1991
Revenue	16,386	18,565
Annual Growth Rate (%)	-	13
Profit	786	803
Annual Growth Rate (%)	-	2

# Market Analysis

## Exhibit E

### 1991 MARKET ANALYSIS BY ERITEL REPORTED ACTIVITY (PTAS MILLIONS)

ACTIVITY	REVENUE	PERCENT
Consultancy	606	3
Data Processing/ Facilities Management	925	5
Hardware and Software products	3,166	17
Systems	13,868	75
<b>TOTAL</b>	<b>18,565</b>	<b>100</b>

Source: Eritel

## Exhibit F

### 1991 MARKET ANALYSIS BY INDUSTRY SECTOR (PTAS MILLION)

SECTOR	REVENUE	PERCENT
Finance	2,981	16
Industry	3,118	17
Public Administration	5,453	29
Telecommunications	7,013	38
<b>TOTAL</b>	<b>18,565</b>	<b>100</b>

Source: Eritel

## Exhibit G

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Processing Services	8	4
Turnkey Systems	26	14
Software Products	7	4
Professional Services	136	72
Systems Integration	10	5
Systems Operation	2	1
<b>TOTAL</b>	<b>190</b>	<b>100</b>

\* INPUT estimate

## Exhibit H

**1991 MARKET ANALYSIS BY INPUT INDUSTRY SECTOR (\$ MILLIONS)**

SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	20	11
Process Manufacturing	5	3
Telecommunications	70	36
Banking & Finance	30	16
Local Government	15	8
National Government	40	21
Other	10	5
<b>TOTAL</b>	<b>190</b>	<b>100</b>

\* INPUT estimate

**Company  
Strategies**

Eritel has three main goals:

- To ensure top quality and maximum profitability of its service offerings
- To achieve increased specialisation of its solutions and to offer a wider range of products

- To expand activities both in Spain and abroad

Eritel is a leading software and services player in its national market. The company offers a broad range of products and services to its four main industry sectors: finance, industry, public administration and telecommunications. Its objective is to become a strategic ally to its customers, providing quality services and solutions regardless of technical complexity.

Eritel is particularly strong in the professional services arena, where INPUT estimates it derived 72% of its 1991 revenues.

Eritel aims to focus on developing its systems integration capability and views this activity as strategic in the continued growth of its business.

Eritel recognises the importance of being in the forefront of technological developments and invested 9% of 1991 revenues in research and development activities. It has also implemented an ambitious training plan for its employees to ensure that staff are well-versed on the latest technological advances.

Eritel's main market is the telecommunications sector, which contributes 36% of its revenues. However, a significant portion of this may come from Telefonica de España, a major shareholder in Eritel.

Eritel does not have a European presence outside the Spanish market. The main challenge for the company will be to move into other country markets through acquisition or partnerships and manoeuvre itself into a position where it can compete with other vendors that already have a head start in the pan-European expansion race.

CAP Gemini Sogeti has a minority shareholding in Eritel, so it is conceivable that Eritel will form partnership agreements with some of the CGS companies throughout Europe.

## COMPANY PROFILE

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### **FINSIEL SpA**

Via Isonzo 21/B

I-00198 - Roma

Italy

Tel: 39 6 84311/851505

Fax: 39 6 84315236

Chairman: Carlo Tedeschini Lalli

Status: Subsidiary

Number of Employees: 7,450

Revenue (FYE 31-12-91): Lire 1,282 billion

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### **The Company**

The Finsiel Group is Italy's largest software and services group and the second largest software house in Europe.

The Finsiel Group consists of a large number of wholly and partly owned operating subsidiaries in Italy. The operating companies provide a range of software and services, addressing mainly the Italian market.

The Finsiel Group was founded in 1969 as ITALSIEL. In 1981 the group was reorganised within a holding structure and the Finsiel name was introduced.

Up until August 1992, Finsiel was owned by the Italian state via IRI, which held 83% of shares, and by Banca d'Italia, which held 17% of shares. IRI then sold its shareholding to another of its subsidiaries, the state-owned telecommunications company Stet SpA, for \$530 million. This was seen as a fund-raising exercise for IRI, and Stet's shares plunged 23% as a result.

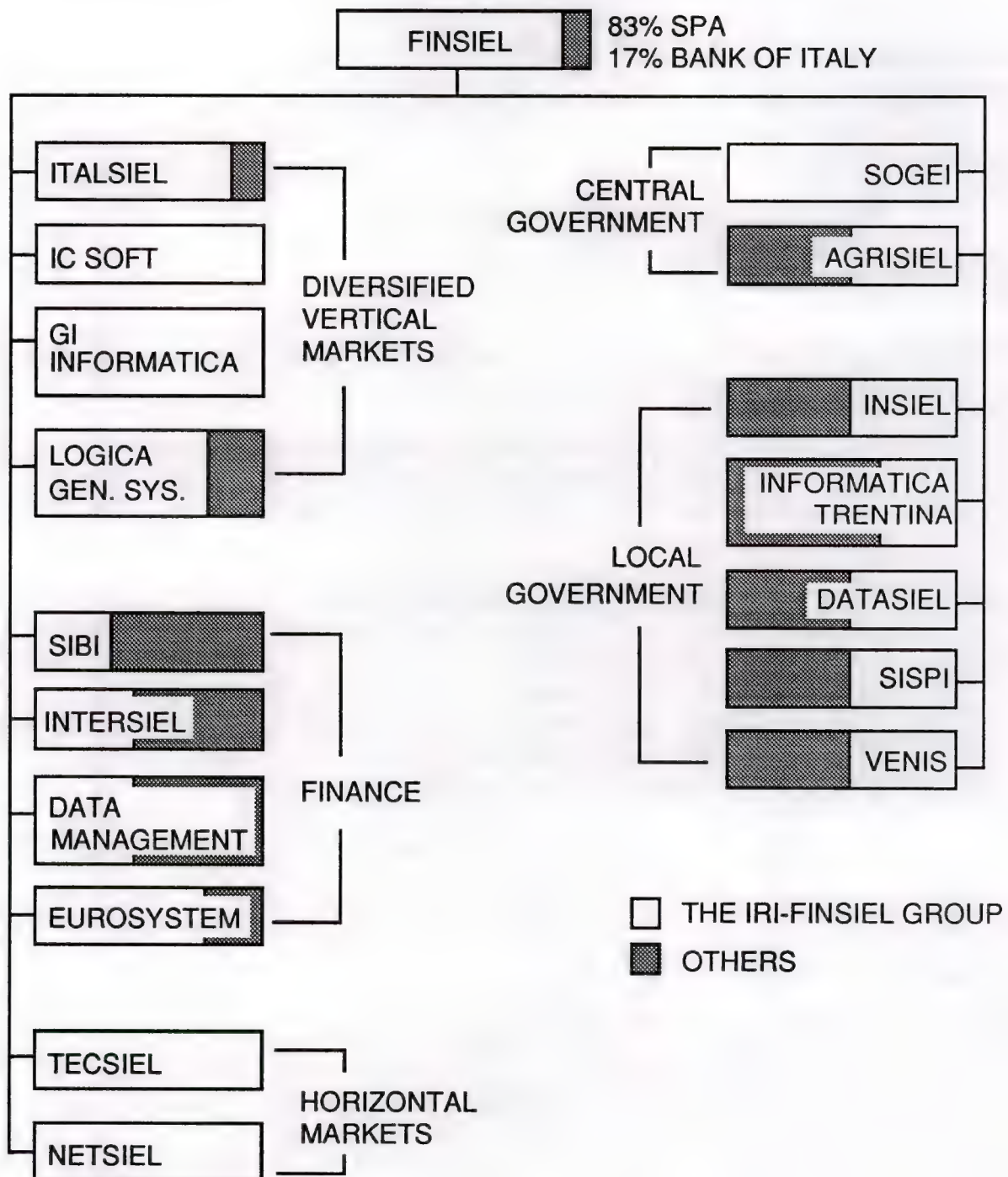
### **Organisational Structure**

Finsiel is organised into 17 main operating companies and has minority stakes in a number of others. Each of the companies has been set up to address a market or a particular industry or government department. The structure of the holding company and the general orientation of the individual companies is shown in Exhibit A.

# INPUT LIBRARY

## Exhibit A

## COMPANY STRUCTURE



Finsiel is a diverse group but has a considerable amount of synergy between its many companies. It describes itself as a networked organisation. The vertically oriented companies are also served by the two horizontal companies Tecsiel and Netsiel. Tecsiel provides research for the group and also offers Case and UNIX products. Netsiel was set up in 1988 to increase quality and productivity of software developed for large projects in both the Finsiel and IRI Group. It acts as the software factory part of the group and also manages the intercompany network.

### **Recent Major Projects**

Finsiel's Italian public sector clients include the following:

- General Audit Office
- Tax Department
- Department of Health
- Department of Agriculture
- Department of Environment and Culture
- Department of Education
- National Highway System
- INPDAl - Social Insurance Organisation for Managers
- INPS - Social Security Organisation
- Land Registry
- CIPA Interbank Organisation for Automation

### **Key Products and Services**

The main activities of the Finsiel Group are as follows:

- Processing Services and Systems Operations

This service category includes a percentage of network services that could not be quantified. Finsiel operates several systems that belong to its clients. One of its subsidiaries in Milan, Data Management, also offers disaster recovery and systems operations services.

- Professional Services

Design, development and implementation of information systems, mainly for public authorities; consulting services; training and education. Finsiel uses the Dafne (Data and Functions Networking) methodology which it has developed in-house. According to the company, this fosters an integrated decentralisation of activities which increases software productivity and quality.

- Software Products

Finsiel has an extensive portfolio of software products developed by several of its operating companies. These are advanced applications and expert systems for industrial automation and graphic data processing, systems software products and software engineering methodologies and tools.

- Turnkey Systems/Systems Integration

Design, implementation and operation of complex intersector systems.

## Financial Information

### Exhibit B

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (LIRE BILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenues	575	699	901	993	1,282
Annual Growth Rate	26%	22%	29%	10%	29%
Profit before Taxes	35.5	43.0	37.2	45.9	61.3
Profit after Taxes	17.7	21.6	17.3	26.2	29.4
% Net Profit	3.1%	3.1%	1.9%	2.6%	2.2%

## Market Analysis

### Exhibit C

#### 1991 MARKET ANALYSIS OF BUSINESS ACTIVITY BY APPLICATION SECTOR

APPLICATION SECTOR	REVENUE (\$ MILLIONS)	PERCENT
Business Information Systems	501	46
Finance	185	17
Health	142	13
Production Automation	109	10
Environment	87	8
Transport/Logistics	22	2
Other Systems	44	4
<b>TOTAL</b>	<b>1,090</b>	<b>100</b>

Source: Finsiel

## Exhibit D

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR**

INDUSTRY SECTOR	REVENUE (\$ MILLIONS)	PERCENT
Central Government	567	52
Local Government	163	15
Banks	207	19
Industrial Organisations	109	10
Other	44	4
<b>TOTAL</b>	<b>1,090</b>	<b>100</b>

Source: Finsiel

INPUT estimates that approximately \$870 million of Finsiel's 1991 revenues were generated from the non-captive software and services market in Europe. Exhibits E and F give breakdowns of 1991 revenues by industry sector and by INPUT delivery mode.

## Exhibit E

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES**

INDUSTRY SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Discrete Manufacturing	50	6
Process Manufacturing	20	2
Transportation	15	2
Banking and Finance	155	18
Insurance	5	<1
Healthcare	115	13
Education	15	2
Local Government	85	10
National Government	350	40
Business Services	10	1
Unclassified	50	6
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>870</b>	<b>100</b>

\* INPUT Estimate

## Exhibit F

**1991 MARKET ANALYSIS BY DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES**

DELIVERY MODE	REVENUES* (S MILLIONS)	PERCENT
Processing Services	185	21%
Application Software Products	35	4%
Systems Software Products	10	1%
Professional Services	555	64%
Network Services	10	1%
Systems Operations	60	7%
Systems Integration	15	2%
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>870</b>	<b>100%</b>

\* INPUT Estimate

## Company Strategies

### (a) Company Direction

The Finsiel Group, throughout its 22-year history, has stuck to its original objective - that of being national IT champion charged with automating the Italian state in all its manifestations, be they hospitals, tax offices, banks or railways.

The company has enjoyed such a strong position in its national market that it has been content to stay within the Italian borders. In the past, the only demonstrations of its international ambitions have been a failed attempt to market Finsiel software in the U.S. and one contract for hospital automation in Spain.

Finsiel has now realised the need to expand its operations in markets outside of public administration. One such market is banking, and in 1991 Finsiel made its first ever acquisitions, taking control of two banking software houses, Data Management and Eurosystem, which belonged to public sector banks. Prior to this all other companies within the group had been set up by Finsiel. In fact, Finsiel had never acquired a controlling interest in a company which it did not create.

Interestingly, Data Management is also a shareholder in Logica General Systems, the Italian subsidiary of the U.K. software house Logica, providing Finsiel with its first European link-up.

**(b) Strengths and Weaknesses**

Finsiel has a number of strengths. It is Italy's largest software and services group and the second largest software house in Europe. Its 1991 turnover grew 29% to Lire 1,282 billion; it owns or controls 17 profitable IT companies, and has minority stakes in at least 6 others; it has expertise in systems integration, turnkey systems and facilities management. The company is also a champion of software engineering technologies and standards and has an impressive list of loyal customers.

Finsiel's customers are predominantly in the public sector and are nearly all Italian. The company has a virtual monopoly in certain sectors, particularly in big contracts for managing the computer systems of government departments. With such a dominant position in its home market, Finsiel has felt little need to look outside Italy for new business.

The company's two main weaknesses are its dependence on the public sector and its lack of European coverage. Whilst other leading European vendors such as CGS and EDS are building up customer bases in the main country markets, Finsiel has been content to operate solely in its national market.

However, the single market directives on public sector tendering procedures will soon outlaw the preferential treatment which Italian public sector IT contracts have shown towards Finsiel; typically they require that any bidding company or consortium be majority owned by the state.

**(c) Conclusions**

Finsiel has traditionally enjoyed a unique place in the Italian software and services market. It has the near monopoly in certain sectors and also has the backing of the Italian state.

However, the company's hold on its markets is now under threat from foreign competition, political manoeuvres and EC rules.

As well as its heavy dependence on the Italian public sector, the state-owned Finsiel is also subject to a level of political manipulation, still perfectly acceptable in Italian public sector companies. This political involvement also reduces the Finsiel Group's capacity for independent action.

For example, in November 1991, Olivetti Chairman and Managing Director Carlo de Benedetti offered to take control of the state-owned Finsiel, but this merger proposal was rejected by IRI, ostensibly on the grounds that the 49% stake de Benedetti was proposing for Finsiel would take the merged software house out of IRI's and the state's control.

Despite its recent emphasis on new markets and innovative software development processes, Finsiel remains best known for its big, mainframe-based public administration contracts.

Its biggest and most lucrative contract is with the Italian tax registry. Finsiel, through its Sogei subsidiary, has designed, operated and managed its information systems on behalf of the Ministry of Finance for 15 years.

Sogei's current contract expires on the eve of 1993. In the past it has always been an automatic renewal, but this time the outcome is not so certain.

Expansion is carried out by the Finsiel Group through the formation of joint ventures with customers. Once the joint venture company is established, it moves from providing services to the original customer to serving the general market.

Finsiel invests over 15% of its revenues in R&D and in training of its own personnel.

The drive for expansion by Finsiel from the government market into the private sector is considered one of the major factors reinforcing the recent trends in the Italian IS industry.

## COMPANY PROFILE

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### GE INFORMATION SERVICES

Via San Gregorio, 34  
1-20124 Milan, Italy  
Tel: 39 2 667051

Giuliano Venturi, Vice President Europe  
Status: Division of General Electric Company  
Total Employees: 2,500  
Total Revenue, Fiscal Year End 12/31/91:  
European Revenues \$235 million (Non-  
captive)(INPUT estimates)

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### The Company

INPUT  
MARK II  
MARK I

GE Information Services offers a portfolio of network-based information services including electronic commerce (EDI electronic messaging and network management), custom industry applications (banking and financial services, retail and trade and transportation, computer hardware and software for example), cross-industry applications (channel management systems and sales and marketing communications systems), network and processing services, systems development and consulting to more than 13,000 clients worldwide. These services are supported by a team of information specialists in 35 countries.

- GEIS was formed in 1979 as General Electric Information Services Company (GEISCO) to consolidate General Electric Company's (GE) MARK II worldwide interactive and remote batch processing services, originally introduced in 1965 under the MARK I name as the first interactive processing service commercially available in the U.S. The organisation unified the U.S. operations handled by GE's Information Services Division with European and Australian operations run by Honeywell. Honeywell retained a 16% interest in GEISCO until January 1972, when GE purchased Honeywell's interest for approximately \$70 million.
- On January 1, 1984, GEISCO once again became an internal component of GE and its legal name became GE Information Services.
- GEIS now reports directly to General Electric as one of the 13 key businesses.

INPUT estimates that GEIS's 1991 European Information Services revenue was approximately \$235 million non-captive (from clients outside the parent GE company).

- The company had more than 13,000 clients by the end of 1991 compared to 10,000 clients in 1990.
- Revenue provided to various units of General Electric Company is estimated at approximately 5% of total revenue.

Effective October 1989, Hellene S. Runtagh was appointed President of GEIS, replacing James McNerney, Jr. In addition to this, Hellene Runtagh was appointed vice president and chief information officer of Corporate Information Technology effective October 9th 1992.

GEIS' primary competitors include AT&T Istel, BT Tymnet, IBM IN, Infonet, Sprint International and Reuters.

- In the EDI and electronic mail area GEIS also competes with Sterling Software (Ordernet), MCI, AT&T Easylink and various PTT-provided services.

## **Organisational Structure**

Overall European headquarters are in Milan in Italy. European operations are divided by region:

Northern headquarters in the U.K.

Western headquarters in Paris, which are responsible for Belgium, Luxembourg, France and Monaco.

Central headquarters in Cologne responsible for Germany, Austria, Switzerland, Denmark, Sweden, Norway and Finland.

Southern headquarters in Milan are responsible for Italy, Spain, Portugal, Greece and Saudi Arabia.

Many of the offices are established through affiliates, e.g. in Finland this is through Nokia, in Spain Teleinformatica. However, the offices in Italy, the U.K., France and Germany are subsidiaries.

Each country office provides the following functions: sales and marketing, customer services and technical development and support. Each office is responsible for its own revenue and sales function with local personnel represented. The country office takes the account management role and is therefore the client's point of contact. It is responsible for instructing the offices of other countries on their role in servicing a particular client's needs should they require services in these countries.

The company therefore has a national sales force but has a worldwide organisation to draw on for applications and support requirements. The U.K. holds the majority of the large banking accounts.

**Key Products and Services**

INPUT estimates that in 1991 GEIS earned \$185 million from network and processing services, \$45 million from professional services and systems operations and the remainder from equipment maintenance and other activities.

**By Network**

GEIS offers its clients the following delivery systems for its processing/network services:

- The MARK III service consists of the following major elements, serving over 8,000 clients worldwide around half of whom will be based in Europe or will have European operations.
  - Foreground Service is the primary offering on the MARK III System, consisting of interactive remote processing on Honeywell/NEC computers. GEIS offers two libraries consisting of over 2,000 software products, a summary of which is found in Exhibit A.

## Exhibit A

## APPLICATIONS AVAILABLE ON MARK III SERVICE

APPLICATION AREA/PRODUCT NAME	APPLICATION AREA/PRODUCT AREA
<b>OPERATING ENVIRONMENT</b> • HONEYWELL DPS 90/ACOS 1000 8000 - BANCOR EXPRESS <b>PROGRAMMING LANGUAGES SUPPORTED</b> • FORTRAN 77                      • PL1 • COBOL                              • BASIC <b>DATA MANAGEMENT SOFTWARE</b> • DMSIII                              • FLEXIMIS • HISAM                                • SAS • DM IV                                • REQUEST • SYSTEM 2000                      • SITE II • MARK IV                              • EPICS • DCM                                  • MARKDATA <b>DATA BUSINESS AVAILABLE</b> • MAP (ECONOMETRIC DATABASE) • CURRENCY DATABASE SERVICE • SECURITIES DATABASE SERVICE • VALUELINE • NEMA (NATIONAL ELECTRICAL MFG.) • DEPARTMENT OF COMMERCE (SIC) • FEDERAL TRADE COMMISSION • CICTBASE • PETROLEUM INSTITUTE • DWIGHTS ENERGYDATA • CORPORATE FINANCIAL DATA SERVICE • BUSINESS AND FINANCIAL DATA BANK • COMMODITY FUTURES • AHAM (HOME APPLIANCE MFG.) • DOW JONES NEWS/RETRIEVAL <b>FINANCIAL APPLICATIONS/TOOLS</b> • GENERAL BUSINESS ACCOUNTING • FINANCIAL ANALYSIS • FORECASTING • AUDITING <b>BANKING/CASH MANAGEMENT</b> • GLOBAL RISK MANAGEMENT SYSTEMS • TRADE WATCH                      • FUNDSNET • LEAPP <b>CHEMICAL</b> <b>COMMUNICATIONS</b> • TELEPHONE CO. OPERATIONS & FINANCE <b>CONSTRUCTION</b> <b>DISTRIBUTION</b>	<b>ELECTRONIC DATA INTERCHANGE</b> • EDI*EXPRESS SYSTEM • EDI*PCC SYSTEM--EDI*CENTRAL SYSTEM • SPS CENTRAL <b>ELECTRONIC MAIL</b> • BUSINESS CONNECT • BUSINESSTALK • QUIK-COMM • QUIKNEWS • X.400 ACCESS <b>ENGINEERING</b> • CIVIL • MECHANICAL • ELECTRICAL AND ELECTRONIC <b>HUMAN RESOURCE MANAGEMENT</b> <b>INSURANCE</b> <b>INVESTMENT RESOURCE MANAGEMENT</b> <b>INVENTORY CONTROL/ORDER SERVICE</b> <b>GRAPHICS AND PLOTTING</b> <b>LINEAR PROGRAMMING</b> <b>MANUFACTURING</b> • INDUSTRIAL ENGINEERING • PLASTICS ENGINEERING • MANUFACTURING MANAGEMENT • NUMERICAL CONTROL • PRODUCTION SCHEDULING • QUALITY CONTROL <b>MARKETING AND SALES</b> <b>MATHEMATICS</b> • OPERATIONS RESEARCH AND MODELLING <b>PROJECT PLANNING AND MANAGEMENT</b> <b>SIMULATION MODELING</b> <b>STATISTICAL ANALYSIS AND FORECASTING</b> <b>TRANSPORTATION</b> • MARINE MANAGEMENT • EQUIPMENT MANAGEMENT SYSTEMS - SHIPMENT TRACKING SYSTEM <b>MISCELLANEOUS</b> • GENIE

- Products are developed by GEIS or licensed from major software vendors. These third-party packages are fully supported by GEIS.

- The MARK 3000™ Service is an IBM-compatible companion service to the Honeywell/NEC-based offerings. Remote batch and interactive processing on large-scale IBM computers is available. Selected applications available on this service are shown in Exhibit B. Usage is split between general business applications and engineering, simulation, and statistical analysis applications.

## Exhibit B

## APPLICATIONS AVAILABLE ON MARK 3000 SERVICE

APPLICATION AREA/PRODUCT NAME	APPLICATION AREA/PRODUCT NAME
<b>OPERATION ENVIRONMENT</b> <ul style="list-style-type: none"> <li>• IBM 3081, MVS, TSO, CGS</li> <li>• IBM 4381, VM</li> <li>• IBM 9000</li> </ul> <b>PROGRAMMING LANGUAGES SUPPORTED</b> <ul style="list-style-type: none"> <li>• FORTRAN 77</li> <li>• COBOL</li> <li>• PL/1</li> <li>• BASIC</li> </ul> <b>UTILITY SOFTWARE</b> <ul style="list-style-type: none"> <li>• LIBRARIAN</li> <li>• REMOTE MEDIA SERVICE</li> <li>• SYNC SORT</li> </ul> <b>PRODUCTIVITY TOOLS</b> <ul style="list-style-type: none"> <li>• ACCOLADE</li> <li>• DOS/OS CONVERSION PACKAGE</li> <li>• ISPF/PDF</li> </ul> <b>DATABASE MANAGEMENT</b> <ul style="list-style-type: none"> <li>• FOCUS</li> <li>• IDMS</li> <li>• SQL/DS</li> </ul> <b>FINANCIAL APPLICATIONS/TOOLS</b> <ul style="list-style-type: none"> <li>• GENERAL ACCOUNTING</li> <li>• FINANCIAL PLANNING (PCP - EPS - IPPS)</li> <li>• FORECASTING (SIMPLAN)</li> <li>• BUDGETING AND MODELING (CPL/TACTIX)</li> </ul> <b>GRAPHICS</b> <ul style="list-style-type: none"> <li>• TELL-A-GRAPH</li> <li>• DISSPLA</li> <li>• GDDM</li> </ul> <b>STATISTICS</b> <ul style="list-style-type: none"> <li>• SAS</li> </ul>	<b>OTHER INFORMATION MANAGEMENT</b> <ul style="list-style-type: none"> <li>• OCF</li> <li>• OXYCALC</li> <li>• MEGACALC</li> <li>• SCRIPT/VS</li> <li>• WYLBUR</li> </ul> <b>PROJECT MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PROJACS</li> <li>• PROJECT/2</li> </ul> <b>SCIENTIFIC AND ENGINEERING</b> <ul style="list-style-type: none"> <li>• MECHANICAL ENGINEERING &amp; DESIGN <ul style="list-style-type: none"> <li>• NASTRAN</li> <li>• SUPERB</li> </ul> </li> <li>• CIRCUIT ANALYSIS <ul style="list-style-type: none"> <li>• ASTAP</li> </ul> </li> </ul> <b>ORDER SERVICE</b> <b>MANUFACTURING</b> <ul style="list-style-type: none"> <li>• PLASTICS ENGINEERING</li> </ul> <b>DISTRIBUTION</b> <ul style="list-style-type: none"> <li>• VEHICLE ROUTING</li> <li>• VSPX (VEHICLE SCHEDULING)</li> </ul> <b>MATHEMATICS</b> <ul style="list-style-type: none"> <li>• MPS III</li> <li>• MPSX/370</li> <li>• SPSS</li> </ul> <b>PLANNING AND MODELING</b> <ul style="list-style-type: none"> <li>• SMOP (PRODUCTION SCHEDULING)</li> <li>• CSMP III (SIMULATION)</li> <li>• DYNAMO III/F (SIMULATION)</li> <li>• GPSS V (SIMULATION)</li> <li>• KETNET</li> <li>• MAGEN (MATRIC GENERATOR)</li> </ul> <b>OTHER</b> <ul style="list-style-type: none"> <li>• GE*TUTOR</li> </ul>

- The MARK 9000<sup>SM</sup> Service, announced in January 1988, is a bundled offering of IBM MVS/XA operating environment processing, storage and IBM-compatible network services.
- The service is targeted to clients whose business requirements include multiple distributed 9370s, remote access to one 9370, the integration of their 9370 systems with other mainframe systems, or a CICS capability. It can be used for departmental processing: development, prototyping and conversions; in distributed configurations for store-and-forward processing and network switching/management; and as a component in custom systems for vertical applications, disaster recovery and remote facilities management.

- The MARK 9000 Service is available in Europe and the U.S. GEIS already has several contracts from the U.S., France, Italy and the U.K. Current clients include National Westminster Bank.
- The GEIS Network is the company's worldwide teleprocessing network based on a proprietary packet-switching protocol. It permits multi-site organisations to achieve data transmission to dispersed terminal and host computers around the world with approximately 600 access points in the U.S. and in-country direct access in 35 countries.
- The GEIS network supports asynchronous, IBM compatible synchronous (Including 3270 BSC, 3270 SNA/SDLC, 2780/3780 BSC, 3770 SNA) and X25 protocols.
- In addition to supporting SNI interconnections among SNA networks, it offers a variety of error-correcting protocols, such as MNP and XMODEM, and it provides 3270 emulation via NET\*CONNECT 3270 and Simrue's Simware 3278, SIMPC and MAC3270.

### **By Application**

GEIS services are categorised into the following application areas:

- Electronic commerce services
  - Electronic data interchange (EDI)
  - Business communications products and services
- Financial information services
- Value-added network services
- Managed network services
- On-line consumer information services

Electronic commerce services (EDI, electronic messaging and network management) provide and external, customer-centred orientation for GEIS' value chain and industry focus perspective. Electronic commerce is designed to link an increasing number of business functions and relationships electronically. These services increase in value as the number and variety of links among customer and overlapping communities expand over time. GE Information Services' strategic direction is closely aligned with electronic commerce because it will enable its customers to significantly improve their customer satisfaction and productivity by linking their business community electronically.

## **Financial Information Services**

GE Financial Information Services, a unit of GEIS formed in 1989, supports international network applications for banking and financial institutions. GEIS offers the following products and services which are generally used as part of a distributed processing service:

- FUNDSNET money transfer systems is a microcomputer-based, automated money transfer service targeted to corporate treasurers. Through a joining marketing agreement with Racal-Guardata, the Money Transfer Systems includes end-to-end authentication as a means of protecting the money transfer instructions.
- FUNDSNET balance reporting system is an automated balance and transaction reporting service used by corporate clients to manage their global cash in an environment of differing time zones and multiple currencies.
- RXM is a network-based service to accommodate a variety of exposure management environments. RXM monitors the Foreign exchange and money markets as well as managing and monitoring exposures in other areas such as securities, commodities and precious metals.
- TRADEWATCH, introduced in September 1989, is a settlement instruction and reporting system for international securities settlement institutions.

## **Electronic Data Interchange Products and Services:**

EDI products and services support the electronic processing and transmission between trading partners of standard formatted data for business documents in a variety of public and private formats using different protocols and access methods.

- GEIS' EDI services are used by clients in the trade and transportation manufacturing and retail industries. GEIS' EDI network currently connects almost 13,000 trading partners worldwide, growing 40% annually.
- The EDI EXPRESS System, introduced in November 1985, provides the capabilities for sending, receiving, translating and compliance checking of EDI messages. The system also provides document and/or interchange level auditing and reporting to the user for tracking and monitoring system usage.
- Two levels of service are available; the interchange level service, announced in December 1989, enables customers to select a level of service commensurate with the requirements of their applications.

The service performs control verification and provides tracking reports for interchanges. The document level services, available since 1987, offers network control verification and tracking at both the interchange and document levels.

- EPC\*EXPRESS™ Service, introduced in January 1990, permits EDI\*EXPRESS clients to initiate electronic payments to their vendors.
- The EDI\*PCT™ System, introduced in November 1985, is a software package for IBM and compatible microcomputers that allows trading partners to send and receive EDI documents and status reports in a standard format to and from the EDI\*EXPRESS System. It can be used as a workstation or as a front-end to an in-house computer for translation. The software licence is \$1,450.
- The EDI\*CENTRAL™ System, introduced in July 1988, is a mainframe software package supporting COBOL 74 for mainframe EDI gateways supporting multiple distributed business applications. It allows the client to send EDI data to and from its in-house application system, and provides EDI translation between application data and EDI standard formats. The system licenses for \$20,000 each for the first copy, with additional copies per company at \$12,000 each. The annual subscription service fee is \$2,400 after the first year.
- The DESIGN\*EXPRESS™ System is a family of products that allows engineering/manufacturing design data to be processed and transmitted electronically in several types of document formats. DESIGN\*EXPRESS products became commercially available in the U.S. in 1989.
- GEIS has designated Microdynamics (Dallas) as a value-added service provider for DESIGN\*EXPRESS to the sewn goods industry.
- In February 1989, GEIS announced an alliance with International Techne Group (ITI) whereby ITI will provide CAD translation software and consulting services to users of GEIS' DESIGN\*EXPRESS services.
- UPC\*EXPRESS Catalog is a service that manages and distributes Universal Product Code (UPC) numbers and their description information to vendors and their retailers. This database of UPC information is integrated with the EDI\*EXPRESS System so that vendors and retailers can use EDI to electronically maintain and receive UPC catalog updates.
- GEIS also supports several private and industry association networks, including Catspeed (Caterpillar Tractor Company's private EDI

implementation), Haggard Apparel Company's HOP (Haggard Order Processing), LeviLink (Levi-Strauss), PetroExx (the Petroleum Data Exchange System) and The Poland Transnet (operated by the Motor Equipment Manufacturers Association, Englewood Cliffs, NJ).

Other EDI-related activities include the following:

- GE Information Services Limited joined with ICL (now 80% owned by Fujitsu of Japan) to form International Network Services Ltd. (INS), offering EDI services in the U.K. In 1992 GEIS exercised its option to acquire an additional 10% of the shares bringing GEIS' total interest in INS up to 50%. In February 1989, INS launched its international "bridge", joining the INS U.K. EDI services to the EDI service provided by GEIS.
- GE Information Services Ltd. was selected by CEFIC, the European Council of Chemical Manufacturer's Federations, as the single clearing-house to provide EDI services to the CEFEC EDI trial for the European chemical industry.
  - In May 1988, GEIS was selected by the Port Authority of New York and New Jersey to provide the EDI\*EXPRESS System for the Port's Automated Cargo Expediting system. The system became commercially available in May 1989.
- GEIS has EDI related alliances with various third parties to sell its services along with their software and equipment. The company currently has agreements with:
  - ACS Network Systems (Concord, CA) for sales to the apparel industry.
  - American Business Computer (Farmington Hill, MI) for the automotive industry.
  - Can/Am Tech (Hamilton, Ontario) for sales and support in the metal industry.
  - Microdynamics (Dallas, TX) for marketing DESIGN\*EXPRESS to the sewn goods and apparel industry.
  - Supply-Tech (Southfield, MI) for sales to the automotive industry.
- GEIS also provides EDI implementation services, including training, conducting trading partner conferences, follow-up conferences with technical support, developing specialised test procedures, customising documentation, and providing overall project management.

## **Business Communications Products and Services**

GEIS offers a family of products for office communications and automation linking geographically dispersed operations via its worldwide teleprocessing network.

- The BusinessTalk™ System 2000 is an intelligent communications capability designed to process, distribute, and retrieve information for members of a geographically dispersed business community via the MARK III Foreground Service through an Apple Macintosh or Windows IBM PC-compatible computer. BusinessTalk 2000 combines the functions of textual databases with a key word search, bulletin boards, electronic mail and graphics.
- The QUIK-COMM™ System is a global electronic-mailbox service that is designed to integrate multisite, multinational business communications for public and private mail systems. The system accommodates eight languages in addition to English.

## **Computer Hardware and Software**

The GEIS network uses over 6,000 processing and communications computers. Over 400 of these are BULL.PMSDs used to handle communications. Large-scale IBM, BULL and NEC processors are concentrated in supercentres in Rockville, Cleveland and Amstelveen, The Netherlands. These consist of:

- Twenty-seven BULL/NEC DPS90/ACOS 1000s and two BULL DPS-9000s operating under GEIS proprietary software for interactive processing, on the MARK III service.
- One IBM 3090, one IBM 3081, one IBM 9121 and one IBM 4381 for interactive and remote batch processing on the MARK 3000 Service.

GEIS's teleprocessing network handles over 400,000 user sessions per day, transmitting over 2000 million characters of data in and out of the system per hour.

The network uses VSAT satellite links, microwave links, 25 transoceanic undersea cables, and 350,000 miles of land-lines.

- Telex Access permits QUIK-COMM users to send messages to and receive messages from Telex addresses during a QUIK-COMM session.
- QUIK-GRAM™ Service enables QUIK-COMM users to deliver electronically produced paper mail messages to virtually anyone with a U.S. or Canadian postal address.

- QUIK-COMM to FAX allows QUIK-COMM messages to be sent directly from a PC to fax machines.
- QUIK-COMM service connectors are interface capabilities that permit users of IBM PROFS, DISOSS, DEC All-in-1, Wang OFFICE, Rydex messaging system (IBM AS/400 or System/3x), 3 + Mail LAN system, or cc:Mail LAN systems to send messages/documents to QUIK-COMM users.
- In October 1989, GEIS announced the commercial availability in the U.S. of X.400 standard access to the QUIK-COMM family of products. In February 1990, GEIS announced an X.400 interconnect to Western Union's EasyLink electronic-messaging service.
- In March 1991, GE announced that it had a contract from the Netherlands Ministry of Internal Affairs agency (called GDA) to develop and operate an electronic-message handling service for Dutch government and municipal office (some 1,000 offices all told). This X.400-based service follows from a pilot service set up for GDA in 1987.
- GEIS has X.400 service interconnection agreements with the following vendors and services:

VENDOR	COUNTRY	SERVICE
AT&T	U.S.	ATTMAIL
BT Tymnet	U.S.	DIALCOM
IBM IN	U.K.	IBM 400
MCI	U.S.	MCI
Sprint Int'l (U.S.)	U.S.	TELEMAIL
Sprint Int'l (U.K.)	U.K.	TMAILUK
Western Union	U.S.	WESTERN UNION
Helsinki Tel co	FI	ELISA
Radio Austria	A	ADA 400
Swiss Telecom	CH	ARCOM
BT Plc	U.K.	GOLD 400
PTT Tel Netherlands	NL	NET 400
Norwegian Telecom	N	TELEMAX
Finnish PTT	FI	MAILNET
Swedish Telecom Int'l	S	TEDE 400
Deutsche Bundespost	D	TELEBOX
Radio Austria	A	RAC MHS
France Transpac	F	ATLAS 400

Agreements with 12 others are under negotiation.

### **Value-Added Network Services**

The MARK\*NET Service is a value-added network service offered only to clients in the U.S. and Canada through direct access, based on the GEIS Network and local support services in both countries.

- A MARK\*NET client who has users outside of North America typically accesses the service via Public Data Network (PDN) access in the local country, interconnected to MARK\*NET via International Record Carrier (IRC) gateways. GEIS provides international access to MARK\*NET in this manner from approximately 70 countries.
- MARK\*NET Service has all the technical functionality inherent in the GEIS network, including multiple protocol support, protocol, conversion services, error correcting protocols, full network redundancy, a security administration and control systems, and on-line monitoring capabilities.
- Access nodes included dedicated leased line access, private dial access and public dial access.

### **Managed Network Services**

Managed network services (MNS), introduced in 1987, is a specialised teleprocessing service that provides client organisations with custom-tailored network and session management to their international information and communications systems. It is sold worldwide and in June 1991 had over 100 clients.

MNS is a single, integrated service that provides the following:

- GEIS consultants with expertise in applications, networking and client support prepare tailored proposals designed for specific client requirements.
- Network and session management using MNS session manager, a network management teleprocessing application.
- Support in managing the global integration of information by co-ordinating with third-party vendors such as postal telephone and telegraph (PTT) authorities and by offering the client a single, worldwide contract.
- Worldwide support 24 hours a day, seven days a week once service is in place.

There are currently approximately 100 multinational clients using MNS, approximately 50% of which are Europe-based companies.

### **On-line Customer Information Services**

GENie™ (GE Network for Information Exchange) is an electronic consumer information service for microcomputer end users.

- GENie permits access to a variety of services, including news and information, financial, travel, shopping, computer games and references, electronic mail and real-time conference.
- Services added to GENie during 1989 include Charles Schwab's discount brokerage and investment information services, Newsbytes News Service, and the Executive Desk Register of Publicly Held Corporations.
- In October 1989, GEIS announced expanded GENie service access to 166 cities throughout Canada via Telecom Canada's iNett 2000 gateway service.
- First marketed in October 1985, GENie now has 350,000 users throughout the U.S. and Canada and in 20 cities in Japan.
- By June 1991, it was available in Europe in Austria, Germany and Switzerland.

Other network-related announcements include the following:

- In June 1989, GEIS signed a joint venture agreement with STET, the telecommunications and electronics holding company of the Italian industrial conglomerate IRI.
  - Under the agreement, STET acquired a 40% interest in GEIS Italy, GEIS's wholly-owned subsidiary in Italy. The company will be operated as a joint venture of STET and GEIS to provide value-added network services in Italy.

Professional services are provided by GEIS systems development and consulting, training and documentation services.

**Geographic Markets**

GEIS products and services are offered through approximately 50 U.S. offices and offices in 34 countries, with global support and access provided by distributors, affiliates, or private data networks in 60 additional countries.

- U.S. regional offices are located in New York City, Atlanta, Chicago and San Francisco.
- International offices are located in Australia, Austria, Belgium, Canada, France, Germany, Hong Kong, Iceland, Italy, The Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, and the U.K.

Software development centres are located in Rockville (MD), Nashville (TN) and Dublin (Ireland).

GEIS's network provides clients with local dial-up services in 750 cities in 35 countries worldwide and is available 24 hours a day, seven days a week, 365 days a year. Coverage is extended to an additional 75 countries by interconnections with public data network and international record carriers.

**Financial  
Information**

As a division of General Electric Company, GE Information Services does not describe its financials separately.

Accordingly, a five-year financial summary for the GE group is shown in Exhibit C and a summary for GE technical products and services into which GEIS is categorised is shown in Exhibit D.

## Exhibit C

**FIVE-YEAR FINANCIAL SUMMARY, FYE 31-12 (\$ MILLIONS)**  
**GE CONSOLIDATED GROUP REVENUES--WORLDWIDE**

	1987	1988	1989	1990	1991
Revenues	48,158	50,089	54,574	58,414	60,236
Annual Growth Rate %	-	4	9	7	3
Operating Profit	4,450	5,940	7,036	7,707	7,943
Annual Growth Rate %	-	33	18	10	3

## Exhibit D

**FIVE-YEAR FINANCIAL SUMMARY, FYE 31-12 (\$ MILLIONS)**  
**TECHNICAL PRODUCTS AND SERVICES CATEGORY--WORLDWIDE**

	1987	1988	1989	1990	1991
Revenues	3,670	4,431	4,545	4,783	5,224
Annual Growth Rate %	-	21	3	5	9
Operating Profit	275	484	589	595	746
Annual Growth Rate %	-	76	22	1	25

## Exhibit E

**1991 MARKET ANALYSIS BY COUNTRY**  
**EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	34	14
Germany	14	6
U.K.	69	29
Italy	29	12
Netherlands	2	1
Belgium/Luxembourg	4	2
Spain	49	21
Switzerland	5	2
Austria	2	1
Sweden	7	3
Denmark	4	2
Norway	4	2
Finland	2	1
Ireland	2	1
Portugal	7	3
Greece	0	0
Eastern Europe	1	0
<b>TOTAL INFORMATION SERVICES</b>	<b>235</b>	<b>100</b>

## Exhibit F

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Processing Services	100	43
Professional Services	10	4
Network Services	80	34
Systems Operations	35	15
Equipment and other revenues	10	4
<b>TOTAL INFORMATION SERVICES</b>	<b>235</b>	<b>100</b>

## Exhibit G

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	65	29
Process Manufacturing	25	11
Transportation	5	2
Utilities	5	2
Telecommunications	5	2
Retail Distribution	5	2
Banking and Finance	60	27
Insurance	10	4
Health care	5	2
Local Government	5	2
National Government	25	11
Business Services	5	2
Other Sectors	5	2
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>225</b>	<b>100</b>

INPUT estimates

 **Company  
Strategies****Company Direction**

GE Information Services objectives are:

- To provide a comprehensive range of services, to create and support information systems by deploying the appropriate telecommunications, processing and software technologies and thereby secure long-term, evolving service business through a close relationship with the client company.

Its overall strategy is to provide highly customised systems through the exploitation of the base, enabling technologies such as EDI and messaging services. The company aims to offer a 'complete service deployment function' with the use of third-party services where necessary.

An entry-level approach is taken through integrated messaging services, i.e. the bulletin boards, databases, EDI, X.400/X.500 and business messaging services. The company is taking the 'electronic commerce' approach through the integrated sales of these services, rather than simple service sales.

At a higher level the approach is to focus on functional applications and specific, targeted vertical industry sectors.

The company is concentrating on a change of focus from processing the other network services to consultancy. Currently, however, INPUT estimates that only 4% of the company's revenue is generated through professional services. Additionally, the target markets which are to be focused on are:

- Transport
- Retail
- Banking and Finance

GEIS is particularly cultivating a consultative approach to clients with the ultimate goal of being recognised as a major systems integration vendor. One aim to facilitate this is to develop and strengthen partnership relationships. Partnerships are being nurtured through the establishment of joint development projects and service provider/client relationships.

**Strengths and Weaknesses**

GE Information Services' main strengths can be summarised as follows:

- Worldwide presence
- Strong parent company

- Networking expertise
- Industry expertise (i.e. Banking and Finance)
- Large customer base

The greatest strength of GE Information Services as an international data carrier is its strong global presence. Such a presence is becoming critical to success in the international network services market. Customers who must manage multinational networks increasingly demand support in, and not just access to and from, the countries where they maintain computer installations.

Another strength of GE Information Services is its ownership. It is a component of and thus has the financial backing of General Electric Company (GE). GE is one of the world's largest corporations, with 1991 revenues in excess of \$60 billion. Apart from being major clients of the company's services, GE has also been operational in GEIS' expansion with Eastern Europe. The network now has connections into Leipzig, Dresden and East Berlin with an access node in Prague.

GE Information Services has two super centre teleprocessing centres in the U.S., complemented by a supercentre in Amsterdam. This base helps make the company one of the dominant forces in the managed network services market and a major European vendor of network applications for banking and finance.

GE Information Services has particular expertise in providing services to the banking and finance sectors. It offers a number of products and services through its financial information services unit. Set up in 1989, GE Financial Information Services supports international network applications for bank and financial institutions. Product offerings range from a system for money transfer to a settlement instructions and reporting system.

The company has an impressive client base with over 13,000 clients worldwide. The majority of these clients are multinational companies and organisations in the banking and finance, retail, transportation and information provision sectors.

GEIS is very well established internationally with approximately 50% of its revenue derived from outside the U.S. INPUT estimates in 1991 that the proportion of revenue in Europe itself totalled \$235 million. The company plans to continue to favour growth organically rather than through acquisition.

The main challenge for GEIS is to increase skills and resources sufficiently to meet its goal of becoming a total solutions provider.

One way of enhancing its service range and improving its vertical expertise would be to acquire a few niche companies. However, as mentioned above, GEIS is not planning any acquisitions in the foreseeable future.

### Conclusions

GE Information Services integrates its networking, processing and software application skills to deliver customised information solutions for customers worldwide. It operates the world's largest commercially available teleprocessing network and is independent of computer manufacturers.

GE Information Systems is a major European vendor of network applications with particular emphasis on banking and finance. Some applications exist as "core" products to service areas of specific client interests. Other applications are developed for clients on a custom-built basis.

The company aims to control the distribution of software within an organisation, transfer data between micros and mainframes, and most significantly, to do this on a global network backbone. GEIS customers can use GEIS's own network-based Bull/NEC computing service, as well as an IBM compatible network-based service operating on IBM 3090, 3081 and 4381 platforms and running under MVS/XA and VM/SP HPO operating systems.

The company is concentrating on functional processes as it accepts that it cannot add value in all market sectors. Functional areas include customer support, sales and marketing, and finance. These neutral functions are designed to apply to most organisations irrespective of their industry sectors to enable the company to enter markets where it has no specific industry expertise and thereby to broaden its customer base.

The concentration on vertical industries is to facilitate the provision of complete services for these particular industries, rather than attempting to be in a position to offer everything in every industry sector.

Although currently 60% of the company's revenue is generated through banking and finance, the majority of this revenue is estimated to derive from processing services rather than network applications services. The company does however have the opportunity to leverage business from these processing services customers. Concerning transport and retail however, INPUT estimates that in total GEIS only generates 10% of its revenue through these customers. The company does however have connections to these industries through INS, which has a very strong customer base particularly in the U.K. retail market through its EDI service.



### GROUPE AXIME

137 Bd Voltaire  
75012 Paris  
France  
Tel: 33 1 40 90 30 00  
Fax: 33 1 43 56 26 02

President: Bernard Bourigeaud  
Number of Employees: 3,250  
Revenue (FYE 30-06-91) FF2.1 billion

### The Company

Group AXIME was founded in 1990. It is the result of the merger between the French companies FITB, Segin and Sodinfor.

With 1991 revenues of FF2.1 billion, AXIME claims to be the fourth largest computer engineering services company in France.

Exhibit A

#### SHAREHOLDERS

SHAREHOLDERS	PERCENT
Paribas - Crédit Dunord	34.95
Banexi (BNP)	4.02
DEFI	10.86
Pole Ch. Marchandise	20.30
Pasquier Informatique (Groupe Generale des Eaux)	4.69
Public Shareholders	25.18

### Organisational Structure

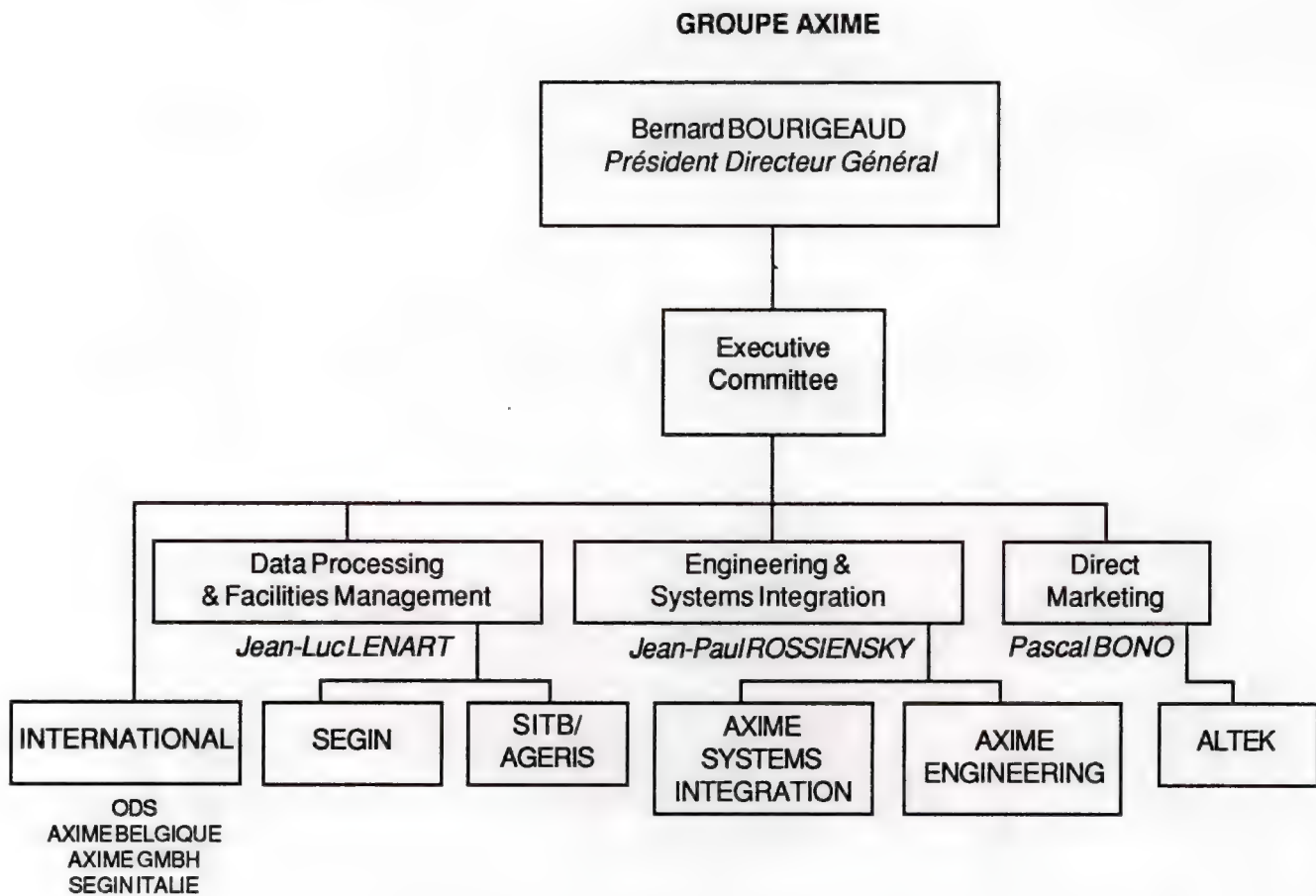
Groupe AXIME's organisational structure is shown in Exhibit B. The company is currently organised into the following business areas:

- **Data Processing and Facilities Management -**  
This operation is headed by Jean-Luc Lenart and consists of Segin and SITB/Ageris.
- **Engineering and Systems Integration -**  
This operation is divided into AXIME Systems Integration (headed by Jean-Paul Rossiensky) and AXIME Engineering (headed by Christian Chevalier).

- **Direct Marketing -**  
This operation consists of Altek and is headed by Pascal Bono.
- Groupe AXIME also has an **international** division under which it groups

ODS (Spain)  
AXIME Belgique (Belgium)  
AXIME GmbH (Germany)  
Segin Halie (Italy).

Exhibit B



## Recent Major Projects

Exhibit C shows examples of clients for whom Groupe AXIME has recently carried out major projects.

### Exhibit C

#### Data Processing

- Baring Securities
- CAIXADE CATALUNYA

#### Audiotext

- La Poste
- CCS Banque

#### Systems Integration

- Crédit Agricole
- BNP
- Paribas
- Societe Générale

## Key Products and Services

### 1. Processing and Value-Added Network Services

#### **Processing:**

AXIME processing services are structured around the following areas of activity:

- Logging and processing of bank cards. AXIME has two processing centres.
- Charge Card: from design to implementation.
- Delivery, installation and maintenance of electronic payment terminals.
- Automatic banking terminal/cash dispenser management and payment authorisation.
- Cheque and bank giro transfer processing. The company handles over 100 million transitions a year.
- Clearing: The company carries out daily processing of regional clearing operations in Lille and Bordeaux for the Banque de France.

**Telematics:**

Groupe AXIME has a multimedia information retrieval centre from which it offers a number of services. The company provides videotex applications to the banking and insurance, communications, distribution, manufacturing, publishing and audit service sectors.

Group AXIME also provides TELEROUTE, a service used by 20,000 road haulage companies.

**2. Facilities Management**

Groupe AXIME's facilities management operation is primarily focussed on the industry sectors where the company has specialised with its other service offerings, mainly banking and finance, manufacturing and distribution.

**3. Engineering and Systems Integration**

Groupe AXIME acts as partner to its clients by offering a range of services aiming to provide companies with optimum information systems. The group installs equipment, integrates systems and provides consultancy, network-related services and maintenance. The company is using its systems integration (SI) expertise in the establishment of SIMON (Système d'Information Monétique National, a national plastic money information system) for the Crédit Agricole. SIMON will be one of the largest interbank networks in the world.

**4. Software Products**

Groupe AXIME's software products are divided into two main groups:

- Banking and Financial: Solutions to manage all banking and stock market operations.
- Systems and Networks: Solutions to automate and ensure integrity of data interchange between machines, applications and sites of one or more companies.

**5. Training**

Groupe AXIME offers a wide range of training courses - 17 of which are approved by the Fonds d'Assurance Formation Ingénierie Etudes Conseil (FAFIEC).

## 6. Direct Marketing

Groupe AXIME covers all the logistic requirements of telephone or catalogue sales and direct mail operations through its direct marketing operation, Altek.

### Financial Information

#### Exhibit D

##### TWO YEAR FINANCIAL SUMMARY (FYE 30-6)

	1990	1991
Revenue (FFm)	2,145	2,160
Annual Growth Rate %	N/A	< 1

Note: AXIME was founded in 1990. Accordingly, the first reported accounts for the group are at 30-6-90. Exhibit E shows the revenues for FITB, Segin and Sodinforg before the merger.

#### Exhibit E

COMPANY	1989 REVENUE (FFm)	EMPLOYEES
FITB	704	1,400
SEGIN	520	1,100
SODINFORG	545	1,200

## Market Analysis

Exhibit F shows the breakdown of Groupe AXIME's revenues by industry sector.

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR (FF MILLIONS)**

SECTOR	REVENUE	PERCENT
Banking/Finance/Insurance	1,404	65
Communications/MEDIA	302	14
Industry/Services/Misc	195	9
Distribution/VPC	130	6
Transport	86	4
Administration	43	2
<b>TOTAL</b>	<b>2,160</b>	<b>100</b>

Source: Groupe AXIME

Exhibit G provides a breakdown of Groupe AXIME's revenues by business activity.

### Exhibit G

**1991 MARKET ANALYSIS BY BUSINESS ACTIVITY (FF MILLIONS)**

	REVENUE	PERCENT
Processing and Facilities Management	1,404	65
Engineering and Systems Integration	518	24
Direct Marketing	238	11
<b>TOTAL</b>	<b>2,160</b>	<b>100</b>

Source: Groupe AXIME

## Exhibit H

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	25	6
Process Manufacturing	10	3
Transportation	10	3
Utilities	10	3
Telecommunications	10	3
Retail Distribution	15	4
Wholesale Distribution	15	4
Banking and Finance	210	53
Insurance	60	15
National Government	10	3
Business Services	20	5
Unclassified	10	3
<b>TOTAL</b>	<b>400</b>	<b>100</b>

*Data may not add to totals due to rounding*

\*INPUT estimates

## Exhibit I

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODES (\$ MILLIONS)**

INPUT DELIVERY MODE	REVENUES*	PERCENT
Processing Services	110	27
Turnkey Systems	60	14
Application Software Products	10	2
Systems Software Products	10	2
Professional Services	165	40
Network Services	15	4
Systems Operations	25	6
Systems Integration	25	6
<b>TOTAL</b>	<b>400</b>	<b>96</b>

*Data may not add to totals due to rounding.*

\*INPUT estimated software and service revenues

## Exhibit J

**1991 MARKET ANALYSIS BY COUNTRY (\$ MILLIONS)**

COUNTRY	*REVENUES	PERCENT
France	388	97
Belgium/Luxemburg	12	3
<b>TOTAL</b>	<b>400</b>	<b>100</b>

\*INPUT estimated software and service revenues

**Company  
Direction**

Groupe AXIME intends to expand geographically both in France and in other countries in Europe by developing its activities on an international level and its partnership agreements in certain sectors.

The strategic objectives of AXIME can be summarised as follows:

- To become the French leader of specialised services within the financial market (banking, finance and electronic transfer of payment) and telematique, in terms of revenues and number of employees
- To be among the market leaders in the areas of software development and direct marketing
- To offer a wide and competitive range of products and services
- To expand through Europe.

Groupe AXIME's services mostly address the banking and insurance, communications, distribution and manufacturing sector. The company is particularly strong in the areas of electronic funds transfer, data communications and direct marketing.

Groupe AXIME claims to be the French leader in provision of computer engineering services to the banking sector.

Currently, AXIME does not have a significant presence outside France - only 3% of 1991 reported revenues come from international business - in spite of subsidiaries in Spain, Belgium, Germany and Italy.

How successful AXIME will be in expanding outside of France depends on how quickly and effectively it can increase revenues in the countries, where it already has a presence, and on its ability to form working partnerships with other European vendors and distributors, particularly in the finance sector where it is strongest.



## COMPANY PROFILE

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### **GROUPE CONCEPT**

14-16 Boulevard de Donaumont  
75848 Paris  
Cedex 17  
France  
Tel.: 33 1 47 15 60 00  
Fax: 33 1 47 56 00 52

President: Charles Picasso  
CEO: Eric Blot-LeFevre  
Status: Subsidiary  
Revenue (FYE 31-12-91): FF 1.47 Billion

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### **The Company**

Groupe Concept (Concept) was founded in 1971 by Olivier Spire, Sydney Bendahan and Michel Lavigne. Between 1985 and 1990 its revenues increased over a ninety-fold, from FF 21 million (\$3.7 million) to FF 1.92 billion (\$340 million), to place it in third position among computer services groups in France. Its areas of activity are: software services, professional services - including consulting and education - processing services, turnkey systems and independent maintenance.

Concept operates through three main companies within its structure: CMMC, Concept Enterprises and Concept Engineering. It also has a hardware maintenance business through Concept Technologies.

Concept has offices in 70 cities in France and in several countries in Europe. However, most of the company's revenues are derived in France.

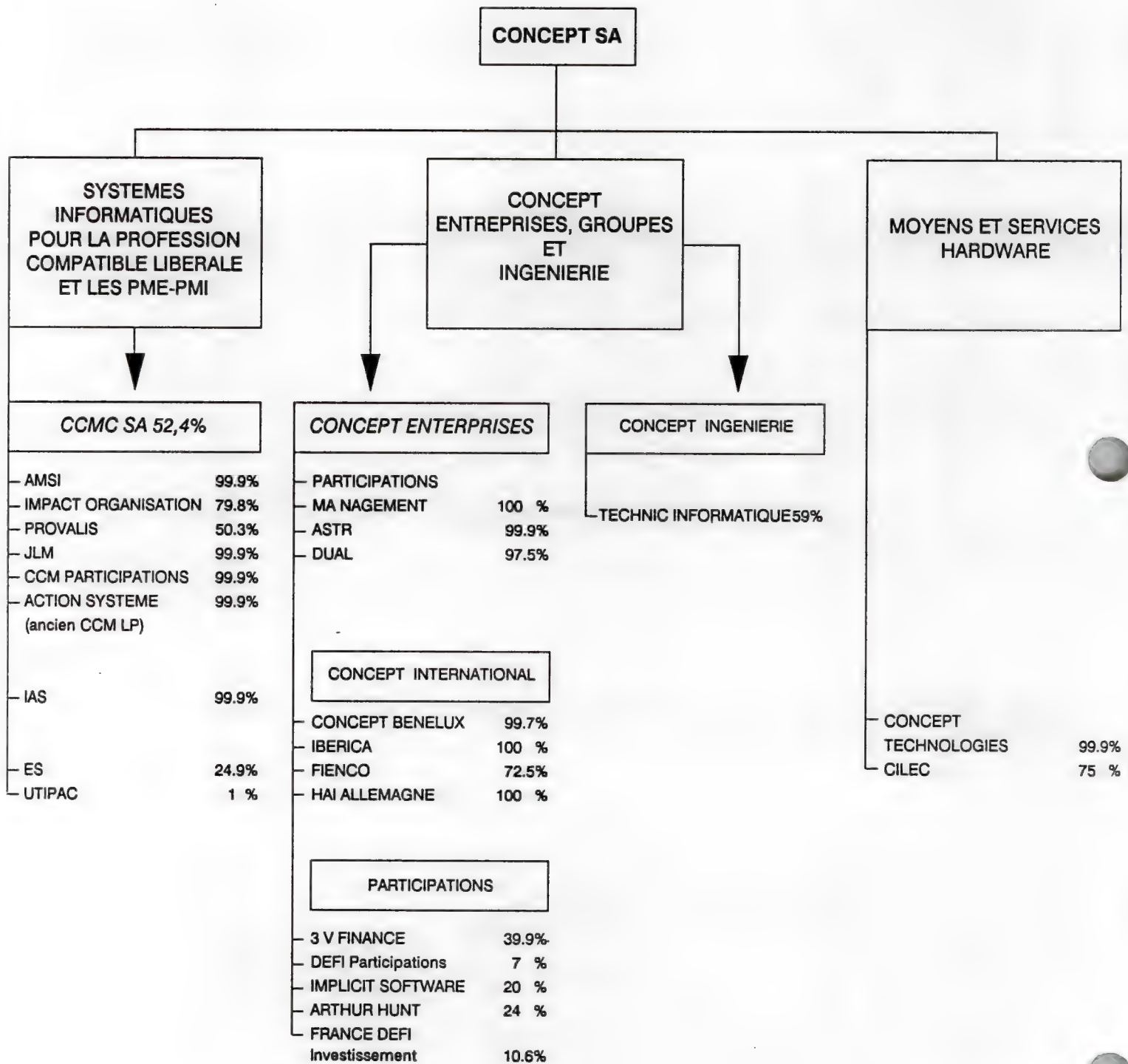
### **Organisational Structure**

Exhibit A shows the organisational structure of Concept and its subsidiaries.

INPUT LIBRARY

## Exhibit A

## ORGANISATIONAL STRUCTURE



**Company Activity**

Concept's revenues grew by 41% between 1988 and 1989; 35% of the growth in revenues was due to mergers and acquisitions activity, and internal growth was 6%. The internal growth was mainly due to a shift from processing services to the accounting profession (which decreased by 17% in 1989) to providing independent systems, which increased by 37% within CCMC.

In October 1990, Concept stunned the Paris Bourse with a first-half loss of \$35.9 million, far greater than anyone had been expecting. Trading in the shares were suspended pending announcement of the figures. Turnover for the half year reached \$245 million. Only a few weeks previously, the company had been forecasting losses of \$8 million, but revised estimates included operating losses of \$40 million for the full year 1990, and exceptional items of some \$60 million were expected to take the total loss to \$100 million. The company blamed the losses on the problems of managing exceptionally fast growth - turnover expanded a hundredfold between 1985 and 1989. It had not made a single acquisition up to 1988, but it had since bought CCMC the accounting systems firm, which had a turnover of \$200 million in 1988; the Italian banking software company CDS, doing \$40 million in 1988; and communications firm Cilec, doing \$5.6 million in 1988. It had also grown to 3,000 employees from just 37 in 1985. Exceptional charges included \$20 million for accelerated depreciation; \$20 million for acquisition costs, and charges for lay-offs at CCMC and for closing a base in Nancy.

Sales of the SCBF banking services division to Altus Finance and the SACI office hardware distribution business to the Fiducial group reduced debt by \$144 million, leaving medium- and long-term debt at \$150 million and reducing annual interest payments to \$15 million.

Revenues and profit continued to drop in 1991, down by 23% and 15% respectively. This change can partly be attributed to the sale of Spectral MIS, its third-party maintenance company to the Thomson Group.

**Key Products and Services**

Concept makes available to every newly formed or acquired company its internally generated language for software development called SDL, claiming that SDL ensures an exceptional level of productivity and reliability for the development and evolution of software products. The flexibility and portability of SDL allows the group to maintain technological independence and gives it a competitive advantage in the rapidly changing financial environment in which most of its clients are.

Concept is active in the following areas:

- Processing Services
- Network Services
- Software Products
- Systems Integration
- Professional Services
- Turnkey Systems
- Customer Services

These services are offered through Concept's operating groups and their subsidiaries:

- CCMC

The company had 1991 revenues of FF 1,000 million, accounting for 68% of group revenues and is quoted on the "Marche a Reglement Mensuel" on the Lyon Stock Exchange. CCMS has four divisions:

**Data Systems** - This division performs processing services, pay-roll management and accounting functions for the accounting profession and its clients. These services are performed from two computer centres in Lyon and Nancy. Data Systems also develops new processing software for other group companies and provides consultancy in facilities management and banking applications.

**Management Systems** - This division provides turnkey systems running on minicomputers and microcomputers to accountants and to small and medium-sized businesses. It also markets software products for horizontal (accounting, sales management, etc.) and vertical (by activity sector) markets.

**Human Resources** - This division provides human resource management and pay-roll computer systems to accounting firms, small and medium-sized businesses and larger companies.

**Training** - This division is designed to provide continuing education services in management and accounting.

- Concept Enterprises had 1991 revenues of FF 329 million and accounted for 22.3% of group revenues. The company offers, through its French and international subsidiaries, consultancy services, specifically to large groups of companies. Concept Enterprises develops integrated software products and turnkey systems to manage treasury, accounting and financial reporting functions. Its future plans include promotion of the group's unique 4GL, the SDL language mentioned above.

- Concept Ingenierie operates through Technic Informatique (TI), which reported 1991 revenues of FF 69 million, accounting for 4.7% of group revenues. The company has a client base consisting mainly of large companies in all business sectors. TI provides professional services (design, support and implementation of industrial management systems) and turnkey systems (running on IBM AS/400, Digital and microcomputer networks). It is involved in complex systems architecture projects.
- Groupe Concept also has a hardware maintenance and services business under which it groups Concept Technologies and CILEC. This part of the group reported 1991 revenues of FF 77 million, accounting for 5.2% of overall 1991 revenues.

### Financial Information

#### Exhibit B

##### FIVE-YEAR FINANCIAL SUMMARY FOR GROUPE CONCEPT (FYE 31-12) (FF MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenue	194.9	1,619	2,298	1,920	1,475
Annual Growth Rate (%)	300	700	42	(16)	(23)
Profit After Taxes	30.3	88.2	149.6	(592)	(680)
Annual Growth Rate (%)	-	191	69	(296)	(15)

### Market Analysis

#### Exhibit C

##### 1991 MARKET ANALYSIS BY INPUT DELIVERY MODE FRENCH SOFTWARE AND SERVICE REVENUES (FF MILLIONS)

DELIVERY MODE	REVENUES*	PERCENT
Processing Services	330	23
Turnkey Systems	300	21
Software Products	470	33
Professional Services	215	15
Network Services	50	4
Systems Operations	55	4
<b>TOTAL</b>	<b>1,420</b>	<b>100</b>

\* INPUT estimates

## Exhibit D

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
FRENCH SOFTWARE AND SERVICE REVENUES (FF MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	300	21
Processing Manufacturing	110	8
Transportation	150	10
Utilities	200	14
Retail Distribution	155	11
Wholesale Distribution	180	13
Banking and Finance	100	7
Insurance	15	1
Business Services	150	11
Other	60	4
<b>TOTAL</b>	<b>1,420</b>	<b>100</b>

\*INPUT estimates

## Exhibit E

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
OTHER EUROPEAN SOFTWARE AND SERVICE REVENUES  
(\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Processing Services	50	18
Turnkey Systems	75	27
Software Products	85	31
Professional Services	45	16
Network Services	10	4
Systems Operations	10	4
<b>TOTAL</b>	<b>275</b>	<b>100</b>

\* INPUT estimates

## Exhibit F

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
OTHER EUROPEAN SOFTWARE AND SERVICE REVENUES  
(\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	58	21
Processing Manufacturing	21	8
Transportation	29	11
Utilities	39	14
Retail Distribution	30	11
Wholesale Distribution	35	13
Banking and Finance	19	7
Insurance	3	1
Business Services	29	10
Other	12	4
<b>TOTAL</b>	<b>275</b>	<b>100</b>

\* INPUT estimates

## Company Strategies

### (a) Company Direction

Groupe Concept's strategy for 1991 and 1992 has been to rationalise its business in the following ways:

- Consolidate products and services that address the same client base
- Refocus its business offerings, while capitalising on its large client base

Many of Concept's difficulties have stemmed from the company not rationalising its acquisitions and subsidiaries sooner, resulting in a large amount of overlapping activities. This fuelled needless competition between operating divisions.

Concept's main weakness has been its lack of a solid strategic direction and, therefore, less-focussed control over its expanding business activities.

**(b) Conclusions**

Through diversifying its services and developing business throughout Europe, Concept has acquired a client base of 4,000 large companies, 500 banks, 5,000 accounting firms and 250,000 small and medium-sized businesses.

After running into difficulties in 1990 due to over-fast expansion and consequent cash flow problems, the group became 51% owned by Altus Finance (Altus), the investment arm of the Credit Lyonnais bank. Altus was responsible for restructuring the group, divesting it of the SACI, SCBF and Spectral MIS subsidiaries, in order to place it once again on a firm financial footing.

To return to a strong financial position, Concept needs to ensure that each of its operations has a clear focus while maintaining their position within the overall direction of the group.

INPUT expects Groupe Concept to recover its strength, provided the company can capitalise on its core strength and avoid over-diversification.

It is expected that during its period of convalescence back to full financial health, Concept will concentrate on its French operations.

### GSI (GENERALE DE SERVICE INFORMATIQUE)

25 boulevard de l'Amiral Bruix  
75782 Paris Cedex 16  
France  
Tel: 33 1 45 02 74 75  
Fax: 33 1 45 00 59 43

President: Jacques Raiman  
Directeur General: Jacques Bentz  
Number of Employees: 3,300  
Revenue (FYE 31-12-91): FF 2,385 million

### The Company

GSI was created in 1971 by CGE (Compagnie Generale d'Electricite). It subsequently became a subsidiary of Alcatel-Electronique (part of the CGE group).

In November 1987, the employees of GSI took control of 70% of the shares of the company. More than half of the employees of GSI are now shareholders.

GSI operates in 10 countries in Europe, North America and Asia.

### Exhibit A

#### SHAREHOLDERS (31-12-1991)

SHAREHOLDERS	% OWNED
GSI-Partners	62.84
GAN	12.12
BNP-Banexi	9.64
Banque Indosuez Charterhouse Initiative & Finance	9.64
Alan Patricof	2.83
Cie Financiere de Rothschild	1.93
Others	1.00

Source: GSI

GSI has a number of French and foreign subsidiaries, which are listed in Exhibits B and C.

Exhibit B

French Subsidiaries	% Owned
GSI Division des Banques S.A.	100
GSI Ingénierie et Service S.A.	100
G.S. Informatique S.A.	100
GSI Transport Tourisme S.A.	59
GSI Finances S.A.	100
GSI Entreprise - Centre Français de Recherche Opérationnelle (CFRO) S.A.	100
GSI Télématic S.A.	100
GSI Ressources Humaines Progiciels S.A.	100
GSI Eco S.A.	100
GSI Tecsi S.A.	69
Générale de Service S.A.	100
GSI Vidéographie S.A.	49
GSI ASCII S.A.	100
GSI Motor Trade S.A.	100
GSI Erti S.A.	70
GSI Transport S.A.	50
Sesamtel GSI S.A.	58
GSI Contact S.A.	100
GSI TPI S.A.	51
Navitel S.A.	30
GSI Distribution S.A.	100
GSI Systèmes S.A.	100
GSA G.I.E.	48
GSI Ami S.A.	100

## Exhibit C

Foreign Subsidiaries	% Owned
GSI International (Belgium) S.A.	100
GSI Travel and Transportation Belgium S.A.	59
GSI U.K. Ltd.	100
GSI Travel and Transportation U.K. Ltd.	59
GSI Resource U.K. Ltd.	100
GSI Italia SpA	100
GSI Industria (Italy) SpA	90
GSI Datel (Germany) GmbH	95
Danet (Germany) GmbH	58
Danet I.S. (Germany) GmbH	42
GSI Autocomp (Germany) GmbH	95
GSI Transport & Touristik (Germany) GmbH	59
GSI Suisse S.A.	100
GSI Motor Trade Division (Switzerland) S.A.	100
GSI Nederland B.V.	100
GSI Travel and Transportation Nederland B.V.	59
GSI U.S.A. Inc.	100
Transcomm Data System (U.S.A.) Inc.	100
Danet Inc. (U.S.A.) Inc.	58
Seresco (Spain), S.A.	100
Tecsidel (Spain) S.A.	80
GSI Transporte y Turismo (Spain) S.A.	59
GSI Incorporated System (Canada) Inc.	100
GSI Transport Tourisme Suisse S.A.	59
GSI Ucoms and its subsidiaries (Netherlands) B.V.	59
GSI Weber und Partner (Germany) GmbH	45
GSI Information Systems Singapore PTE Ltd.	100
Lammert-Paisy (Germany) GmbH	95

Exhibits D and E provide breakdowns of employees by country and company activity.

## Exhibit D

## 1991 EMPLOYEE ANALYSIS BY COUNTRY

Country	Percent
Belgium	1.9
France	63.2
Germany	10.4
Italy	2.0
Netherlands	3.0
Singapore	N/A
Spain	8.6
Switzerland	1.5
U.K.	5.2
U.S./Canada	4.2

Source: GSI

## Exhibit E

1991 EMPLOYEE ANALYSIS BY ACTIVITY

Percent	Activity
22.8	Payroll and Human Resource Management
16.9	Business Management
6.6	Motor Trade
12.8	Travel and Transportation
0.5	Marketing and Economics
18.6	Advanced Technologies
14.1	Outsourcing
6.1	Telematics
1.6	Headquarters

Source: GSI

**Recent  
Acquisitions**

In 1990 and 1991 GSI made a number of acquisitions, increasing its activity worldwide.

- The company acquired 59% of GSI-Ucoms in the Netherlands and 45% of GSI Weber und Partner in Germany adding depth to GSI's transportation offerings and expanding its activity into Eastern Europe.
- In 1991 the company's activity expanded in North America through the acquisition of IMI System's warehouse management activity (Warehouse Management Systems).
- In October 1991 GSI acquired Lammert, a leading German payroll and personnel management company.
- GSI also made an acquisition in France, namely GSI Ami, a payroll management company.

**Key Products and  
Services**

GSI specialises in the following product groups and business sectors:

- (1) Payroll and human resource management
- (2) Business management
- (3) Motor trade
- (4) Travel and transportation
- (5) Marketing and economics
- (6) Advanced technologies
- (7) Outsourcing
- (8) Banking.

### **(1) Payroll and Human Resource Management**

This sector offers complete solutions built round packages and computing services to meet personnel management needs in the following:

- Time management
- Payroll
- Personnel administration
- Human resource management.

By marketing the same line of products Europe-wide, GSI offers compatible multinational information systems.

GSI is represented in Belgium, Canada, France, Germany, Italy, Spain, Switzerland and the U.K., where its services are used by 8,200 organisations.

#### **Products:**

- *ZADIG, G-XP, CLIPPER-XP, PAPA-XP*: Software products for payroll and personnel management on IBM mainframes, IBM AS/400, Digital and Bull.
- *RESOURCE, KHRONOS-XP, PAYAMI*: Software products for human resource and time management on micro-computers.
- *ZADIG-MX, ZADIG-GP, ZADIG-SX, PAYAMI*: Total service solutions for payroll and personnel management.

With the 1991 acquisition of Lammert, GSI now offers the Paisy payroll product, used by 1,200 medium to large organisations in Germany. Paisy has also been adopted by approximately 400 organisations operating in eastern Germany.

### **(2) Business Management**

GSI's business management activities are split into three components:

- Distribution management
- Industrial management
- Financial management.

GSI's business management activity provides software for production, distribution, accounting and financial control. International development continues with the opening of a branch in Singapore to market Tolas Distribution software in Southeast Asia and with work under way at new locations in the Netherlands and in Germany.

(Note: GSI has a partnership with Digital for the Tolas Distribution product, which Digital chose to manage its own European logistics).

**TOLAS DISTRIBUTION:** GSI has installed this product throughout Europe and the U.S. In 1990, a contract to install information systems for the world logistics facility for Apple Computer, Inc. further reinforced GSI's international capability.

In 1991, GSI signed contracts with Leica, Lever Europe, Philips Consumer Electronics and Vickers.

**ACCOUNTING AND FINANCIAL MANAGEMENT:** Provides systems engineering services and software packages for building information systems for large and medium-sized companies.

**TOLAS FINANCE:** This is a software package for IBM large and medium-scale systems (i.e., for 3090 and AS/400 architectures). New clients in 1991 included Leroy Somer, Samaritaine, Technip, and Zurich Assurances.

**TOLAS PRODUCTION:** GSI was the first company in France to offer a "just-in-time" module for computerised production control.

In 1991, the product range for manufacturing was extended by a UNIX version of Sofia - for shop floor planning, and by Tolas Production Open, characterised by its independence from equipment platforms and database management systems.

GSI's worldwide presence in France, Belgium, U.K., U.S., Switzerland, and Spain (via a distribution contract with Alcatel Sistemas de Informacion SA) has been increased by new sites in Italy and Singapore in 1990. GSI acquired a warehouse management system from IMI systems in 1991.

### **(3) Motor Trade**

This area provides sales information systems for automobile manufacturers and importers, fully integrated management for dealers, and information exchange between a manufacturer and his network.

Motor trade activity is organised around three areas of competence:

- DMS (Dealer Management Systems) offers an integrated management system for agencies and dealerships. GSI will launch a new version of this product in 1992.
- MSS (Marketing and Sales Services) maintains and manages data banks by industry sector for automobile makers who wish to use their networks as the optimum means to win and retain customers. In 1991, GSI signed a contract with Citroën for this service.
- DDS (Data Distribution Services) supplies data to motor industry network users on such items as required repair lead times, the prices of spare parts, etc. The Menu Pricing Service (MPS) combines all input needed to establish an estimate, enabling dealers and agents to give customers instant, accurate and detailed cost information on repairs. SEAT became a user of this service in 1991.

GSI's network is linked to over 8,000 dealers in eight European countries.

### **(4) Travel and Transportation**

GSI provides information and communication systems for freight carriers and their customers. Areas of expertise are electronic data interchange (EDI) services and links between air freight reservation systems. GSI Travel and Transportation is organised around three main activities:

- Transportation
- Travel
- Clearing.

#### **Transportation**

GSI has strengthened its position with the acquisitions of the Dutch company Ucoms, which specializes in the management of road, air and maritime carriers, and the German company Weber und Partner, a supplier of a micro-computer integrated management system for freight hauliers. GSI has the contract for the development and operation of Transponet, an EDI service linking European carriers and their users.

EDI services for Bosch and Unitrans are also being developed by GSI.

## **Travel**

In 1990, the GSI travel division was named prime contractor for the Eurotop project (the development and distribution of electronic brochures for tour operators). The division was also chosen to head up development of Ulysse, a tourist information database, in partnership with the International Federation of Automobile Clubs, GMF and IBM.

## **Clearing**

In 1990 the clearing division won the contract to design a car rental clearing system between travel agents and Avis, Budget, Europcar and Hertz. The agreement will ultimately apply to 15 countries across Europe.

## **(5) Marketing and Economics**

In 1991, GSI sold its Marketing Systems operation, but added Aerospatiale, Elf Aquitaine, the World Bank and the EC Commission to the users of its "Chelem" CD-ROM database, which provides data on foreign trade.

## **(6) Advanced Technologies**

This division has four distinct units:

- GSI-Tecsi (France)
- GSI-Erli (France)
- GSI-Danet (Germany)
- GSI-Tecsidel (Spain).

The 630 engineers and consultants in the division concentrate on four areas:

- Information systems architecture
- Telecommunications
- Real-time intelligence
- Artificial intelligence.

GSI provides high-level consulting in all of these areas as well as in systems integration work and expert systems.

Telecommunications and natural language specialists worked closely with GSI Travel and Transportation to develop the Eurotop and Ulysse software - see above under (4).

In 1990, the expert systems and natural language activities were grouped together in GSI-Erli, placing GSI among the top-ranking European companies in artificial intelligence applications.

In 1991, GSI-Erli was awarded contracts by Aerospatiale and INSEE.

In Germany, GSI-Danet claims a leadership position in advanced technology for telecommunications. Its OSI product OSITEL/400 was selected as the X.400 reference installation by the European Open Systems Test Consortium (OSTC), which is used to verify the equivalence of the different conformance testing laboratories.

A consortium of four major German banks has asked GSI-Danet to undertake a study to plan and design a nationwide telecommunication network that would link more than 8,000 branch offices.

### **(7) Outsourcing**

GSI offers users a total systems engineering facility and service linked to the design and operation of their information system and tailored to their IS policy.

In 1986, GSI installed a network linking together the French government's foreign-based export offices.

The French National Education Ministry asked GSI to create **Edutel**, an internal electronic mail system, with a videotex service centre to transmit news and data to teachers, parents and students. Edutel is currently one of the world's largest videotex service centres.

GSI-Banque has been working on a number of projects with two French banks, Compagnie Financiere de Suez and the Banque Nationale de Paris (BNP).

GSI won the Euro Disneyland facilities management contract in 1989.

### **(8) Banking**

GSI offers to satisfy all the needs of the banking sector from systems design to installation and operation. GSI has also developed an offer of outsourcing systems for the banking industry. Built around Archerys software, which GSI distributes through an agreement with the American specialist banking software company Systematics, it provides commercial banks with a complete, integrated solution.

GSI has signed an exclusive partnership agreement with Systematics. Products, to which it has access as a result, cover mutual funds and private banking management. GSI claims to have 25% of the employee savings and pension fund management market in France.

**Financial  
Information****Exhibit F****FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	1,386	1,566	1,768	2,044	2,385
Annual Growth Rate (%)	7	13	13	16	17
Profit before Taxes	55.3	92.7	121.2	136.5	164.1
Profit after Taxes	29.3	62.2	79.5	92.8	96.0
Average number of employees	-	-	2,528	2,950	3,302

Source: GSI

**Exhibit G****KEY FINANCIAL RATIOS**

YEAR	1987	1988	1989	1990	1991
Return on sales (%)	4.0	5.9	6.9	6.7	6.9
Return on capital Employed (%)	-	-	-	46.7	42.2
Revenues per employee (FF 000's)	-	-	699	693	722

Source: GSI


**Market  
Analysis**
**Exhibit H****1991 MARKET ANALYSIS BY ACTIVITY (FF MILLIONS)**

ACTIVITY	REVENUE	PERCENT
Pay-roll and Personnel Management	630	26.4
Business Management	382	16
Motor Trade	186	7.8
Travel and Transportation	336	14.1
Marketing and Economics	12	0.5
Advanced Technologies	348	14.6
Outsourcing	491	20.6
<b>TOTAL</b>	<b>2,385</b>	<b>100</b>

Source: GSI

**Exhibit I****1991 MARKET ANALYSIS BY GEOGRAPHIC AREA (FF MILLIONS)**

GEOGRAPHIC AREA	REVENUE	PERCENT
France	1,575	66
Germany	240	10
United Kingdom	117	5
Spain	180	7.5
Switzerland	42	2
The U.S. and Canada	87	3.5
Italy	52	2
Belgium	25	1
Netherlands	67	3
<b>TOTAL</b>	<b>2,385</b>	<b>100</b>

Source: GSI

## Exhibit J

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (FF MILLIONS)**

INPUT SERVICE MODE	REVENUES	PERCENT
Processing Services	480	20
Network Services	430	18
Application Software Products	450	19
Professional Services	380	16
Systems Operations	475	20
Systems Integration	50	2
Turnkey Systems	120	5
<b>TOTAL</b>	<b>2,385</b>	<b>100</b>

Source: INPUT estimate

**Company Direction** GSI's mission is to integrate software, information, services and computer networks to provide advanced solutions for the information processing, data transmission and management needs of modern corporations.

In 1991, GSI opened a European competence centre for transportation in Rotterdam, and the company is keen to expand its market penetration in its chosen specialisms across Europe.

In accordance with the move to object-oriented methods, GSI is in the process of updating its own application software products, and is introducing new versions of its automotive dealership management product and its Tolas Distribution product.

**Strengths**

GSI's strengths include its capabilities in the areas of:

- Logistics flows comprising manufacturing, distribution, transport and financial management - market leader among independent vendors according to INPUT
- Automobile distribution networks
- Tourism
- Banking
- Human resource management.

Apart from areas such as human resource management, where the company has recently consolidated its European position with the acquisition of Lammert in Germany, GSI has a strong vertical focus based on application software products.

### **Conclusions**

The company monitors the application of new technologies closely and has expertise in artificial intelligence, expert systems and natural language.

The company is also one of the market leaders in both the French and the European outsourcing market, where the company's emphasis is increasingly on application operations utilising the company's vertical market expertise.



## COMPANY PROFILE

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### HEWLETT-PACKARD

Corporate Headquarters  
3000 Hanover Street  
Palo Alto, CA 94304  
USA

Tel: (415) 857 1501  
Fax: (415) 857 5518

European Headquarters  
150, Route du Nant-d'Avril  
CH-1217 Meyrin 2  
Geneva  
Switzerland  
Tel: 41 22 780 8111  
Fax: 41 22 780 8542

President: John Young

Status: Public

Revenues: \$14.5 billion worldwide  
\$5.4 billion (Europe) \$3.5 billion (services)  
worldwide

Number of Employees: 89,000 (worldwide)  
19,800 (Europe)

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### The Company

The Hewlett-Packard Company of Palo Alto, California, is one of the world's leading manufacturers of computer and peripheral products and measurement systems, including analytical and medical equipment and electronic components. The company's products are used in industry, business, engineering, science, medicine and education.

In 1992, Hewlett-Packard was ranked 29th largest in the Fortune survey of U.S. industrial companies. For the financial year 1991, Hewlett-Packard reported a worldwide sales revenue of \$14.5 billion. The company employs 89,000 people and has operations in more than 100 countries.

### European Organisation

Hewlett-Packard has been operating in Europe since 1959, when it set up its first manufacturing site outside the U.S. in Boeblingen, Germany.

In 1989 Hewlett-Packard listed its stock in the exchanges in London, Paris, Frankfurt and Zurich.

INPUT  
LIBRARY

Hewlett-Packard is active in 27 European countries and also manufactures in the U.K., France, Spain and Italy. In addition to applied research conducted in most European manufacturing facilities, Hewlett-Packard is committed to fundamental research in its laboratories in Bristol, U.K., and its Science Centre in Pisa, Italy. Hewlett-Packard also participates in European Community research projects such as ESPRIT, AIM, EUREKA and RACE.

In addition to Hewlett-Packard's equipment and instrument offerings, the company offers a range of software products for mechanical, design, management information, hospital information systems and manufacturing automation.

As the largest Hewlett-Packard organisation outside of the U.S., European operations in 1991 accounted for \$5.4 billion of sales in 1991.

Of 19,800 European employees, 7,100 are in R&D and manufacturing, while 12,700 are in sales and support.

### **Organisational Structure**

In October 1990, Hewlett-Packard began to implement changes in its managerial structure. This was aimed at simplifying its organisational structure, streamlining decision-making and giving managers more direct control over the technologies and sales activities required for the success of their business.

The company's activities are now organised into three divisions:

- Computer systems organisation
- Computer products organisation
- Test and measurement organisation

The computer systems organisation brings together Hewlett-Packard's workstation and multiuser systems businesses.

The computer products organisation combines Hewlett-Packard's PC and Peripheral businesses.

The test and measurement business combines the activities of Hewlett-Packard's electronic instruments and microwave and communication groups.

Exhibit A shows Hewlett-Packard's key executives and their responsibilities.

## Exhibit A

**KEY EXECUTIVES**

David Packard John Young Lew Platt	Chairman President and CEO Executive Vice President Computer Systems Organisation
Ned Barnholt	Vice President Test and Measurement Organisation
Dick Hackborn	Executive Vice President Computer Products Division

**Recent Major Projects**

Examples of systems integration projects carried out in Europe by Hewlett-Packard are shown in Exhibit B.

## Exhibit B

**EXAMPLE OF PROJECTS  
HEWLETT-PACKARD, SYSTEMS INTEGRATION**

Sector	Project Purpose
Oil	Executive information systems providing access to IBM, Digital and UNIX equipment.
Process Manufacturing	Implementation of customized production management systems across three countries
Telecommunication	Improvement of office productivity by integrating IBM Profs and Digital All-In-One into an open environment

Source: INPUT

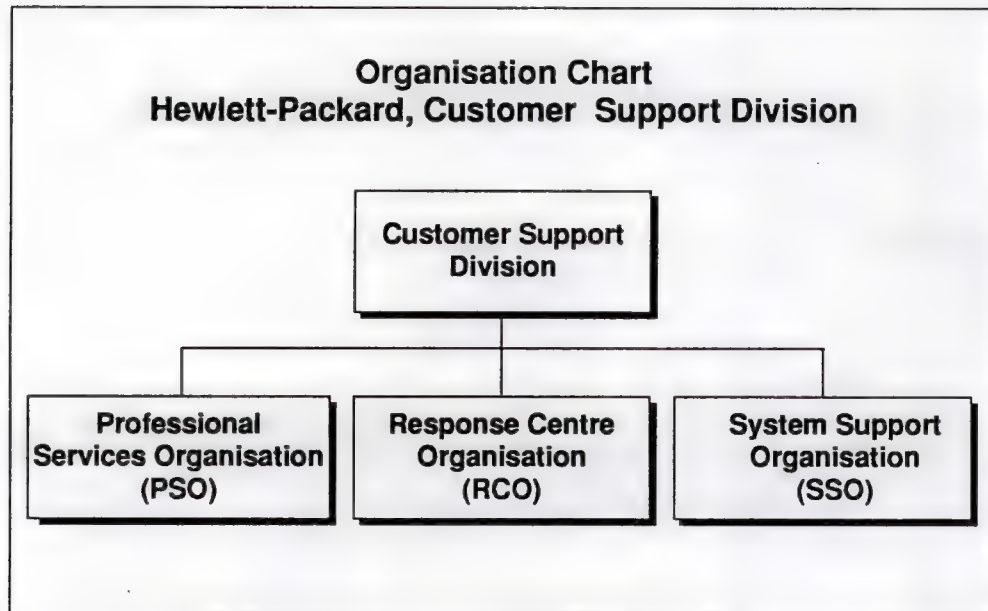
**Key Products and Services**

For the purposes of this profile, INPUT is concerned only with the Software and Services activities of the Computer Systems Organisation.

Within the software and services market, as defined by INPUT, Hewlett-Packard is active in the systems software and professional services areas. In 1991, INPUT estimates that European revenues earned from these two markets were \$180 million and \$110 million respectively. In addition, Hewlett-Packard is keen to move into the systems integration market.

Hewlett-Packard's Professional Services Operation, (PSO) is part of its customer support organisation, which in turn is a division of the computer systems organisation. The position of PSO within the customer support division is shown in Exhibit C.

Exhibit C



The goal of Hewlett-Packard's computer systems organisation is "to lead the world in open, easy to use, client/server systems." However, this goal becomes more difficult to achieve if the distribution channels providing access to major accounts become dominated by rival equipment manufacturers' systems integration-based account management approaches. Indeed, it may have become impossible for Hewlett-Packard to gain access to large accounts unless it, too, developed its systems integration services.

The difficulties of marketing mainly equipment to Hewlett-Packard's target and major accounts was confirmed by a survey, which indicated that:

- Clients would like Hewlett-Packard to offer consulting, system integration, and education services in addition to equipment.
- Equipment sales would be assisted by provision of these services, and adversely affected if these services were not available.
- Hewlett-Packard was perceived as having an advantage over Digital and IBM in providing open systems, client/server solutions.

Accordingly, Hewlett-Packard's newly formed Professional Services Organisation (PSO) offers consulting, systems integration and education services with the goal of "making Hewlett-Packard's computer strategy successful by making its customers successful with open client/server systems".

Software support is now handled by a combination of the Response Centre Organisation and the System Support Organisation (SSO). In addition, SSO handles all field maintenance and environmental services.

### **Industry Focus**

Hewlett-Packard is currently targeting two industry sectors--manufacturing and telecommunications--in which the company has high levels of knowledge and experience.

Hewlett-Packard recognises the need for a strong base of applications software products to support its development of these sectors, and hence the need to develop its long-term relationships with appropriate applications software products vendors.

Hewlett-Packard currently has partnerships with Software AG, QAD and Datalogic.

**Financial  
Information****Exhibit D****FOUR-YEAR FINANCIAL SUMMARY, FYE 31-10 (\$ MILLIONS)  
CONSOLIDATED GROUP REVENUES**

	1988	1989	1990	1991
Revenues	9831	11899	13233	14494
Annual Growth Rate (%)	-	21	11	10
Earnings before tax	1141	1151	1056	1127
Annual Growth Rate (%)	-	1	-8	7
Earnings after tax	816	829	739	755
Annual Growth Rate (%)	-	2	-11	2

**Exhibit E****FOUR-YEAR REVENUE SUMMARY, FYE 31-10 (\$ MILLIONS)  
TOTAL EUROPEAN OPERATIONS**

	1989	1990	1991
Revenues	4131	4764	5378
Annual Growth Rate (%)	-	15	13

**Market  
Analysis****Exhibit F****1991 AND 1990 MARKET ANALYSIS BY BUSINESS ACTIVITY  
(\$ MILLIONS)**

	1991		1990	
ACTIVITY	REVENUE	PERCENT	REVENUE	PERCENT
Equipment	11,019	76	10,214	77
Services	3,475	24	3,019	23
<b>TOTAL</b>	<b>14,494</b>	<b>100</b>	<b>13,233</b>	<b>100</b>

Source: Hewlett-Packard

## Exhibit G

**1991 MARKET ANALYSIS BY GEOGRAPHIC AREA  
(\$ MILLIONS)**

	REVENUES	PERCENT
U.S. 9,613	51	
Europe	5,789	31
Other Areas	3,457	18
TOTAL	18,859	100
Eliminations	(4,365)	
<b>TOTAL</b>	<b>14,494</b>	

Source: Hewlett-Packard

## Exhibit H

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Application Software Products	15	2
Systems Software Products	180	20
Professional Services	110	12
Equipment Services	595	66
TOTAL INFORMATION SERVICES	900	100
<b>TOTAL EUROPEAN REVENUES</b>	<b>3700</b>	

\*INPUT estimates

## Exhibit I

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	141	16
Germany	150	17
U.K.	240	27
Italy	95	10
Netherlands	48	5
Belgium/ Lux.	35	4
Spain	78	9
Switzerland	33	4
Austria	16	2
Sweden	21	2
Denmark	15	2
Norway	9	1
Ireland	7	1
Portugal	5	<1
Other	7	1
<b>TOTAL INFORMATION SERVICES</b>	<b>900</b>	<b>100</b>

\*INPUT estimates, totals may not equal 100 due to rounding.

## Exhibit J

**1991 MARKET ANALYSIS BY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	85	28
Process Manufacturing	30	10
Transportation	5	2
Utilities	10	3
Telecommunications	5	2
Wholesale Distribution	10	3
Banking and Finance	45	15
Healthcare	15	5
Education	5	2
National Government	30	10
Business Services	5	2
Unclassified	60	19
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>305</b>	<b>100</b>

\*INPUT estimates, totals may not equal 100 due to rounding.

Note: Excludes Equipment and Maintenance revenues.

**Company  
Direction**

Hewlett-Packard views two key trends as driving the marketplace:

- The move to standards-based, open systems and software
- The growth of distributed, client/server computing

In response to these trends, Hewlett-Packard has identified what it sees as four key customer needs:

- To take advantage of new technologies while protecting current IS investments
- To improve access to information
- To reduce costs of managing and operating information systems
- Technical expertise to supplement own staff

Hewlett-Packard perceives that clients wish to move toward open systems and client/server environments, but in the short to medium term any systems will have to accommodate and co-exist with the client's existing applications. These existing applications have often been developed in-house on proprietary equipment.

However, this co-existence is creating substantial technology/network integration opportunities as clients seek better access to information across distributed systems and organisations.

Hewlett-Packard has positioned its Professional Services Organisation to address these needs. It will continue to:

- Offer consulting, educational and systems integration services in focused areas to help customer successfully take advantage of open, client/server environments
- Increase Hewlett-Packard's solution offering through extensive use of partners and subcontractors to supplement Hewlett-Packard core expertise
- Serve as subcontractor to Hewlett-Packard partners in which Hewlett-Packard offers core competencies

The company will also continue its focus on the telecommunications and manufacturing sectors, where it has been successful in the past.

Unlike other services vendors, Hewlett-Packard does not offer business consultancy, but sees its role as becoming involved in establishing the linkage between business strategy and information systems, in areas such as transition planning and IS architecture planning.

### **Strengths and Weaknesses**

Hewlett-Packard's main strengths include:

- Established vendor
- Reputation for quality products
- Strong support services
- Strong systems integration skills

Hewlett-Packard is an established vendor in the marketplace. Founded in 1939, Hewlett-Packard is in fact the most established of the equipment vendors. It is viewed by clients as a "tried and trusted" company which has stood the test of a changing technological environment. Hewlett-Packard has managed to retain its position at the forefront of the equipment industry.

Hewlett-Packard has built up a solid reputation as a provider of quality products. Its current product range encompasses more than 10,000 offerings. Hewlett-Packard has always manufactured quality products and has continued its quality leadership in standard-based computing, so much so that the Open Software Foundation chose Hewlett-Packard technology as basic components of its distributed computing environment.

Hewlett-Packard has another strength in its strong technical skills and resources, particularly for systems integration. One of the key skills of Hewlett-Packard's SI unit is the ability to network widely differing technologies. Another is the ability to assist clients in planning the transition between proprietary and open systems client/server architectures.

As open systems and client/server computing grow, Hewlett-Packard's long-standing strength in customer service and support will become a powerful competitive advantage--particularly in the software and services arena.

The key challenges facing Hewlett-Packard in becoming a world-class open systems professional services provider are:

- Developing a systems integration support infrastructure
- Developing multinational systems integration support capability

In particular, Hewlett-Packard is keen to develop the talents of its project managers, increase its experience in managing subcontractors, and develop its bid support capabilities.

### **Conclusions**

Hewlett-Packard's Professional Services Organisation provides all professional services, including pre-sales support and project managers for systems integration projects.

Hewlett-Packard, like many of its fellow systems vendors, is keen to develop its presence in the systems integration market. The vehicle for expanding its presence is the Professional Services Organisation (PSO) formed two years ago from the company's Application Engineering Organisation.

However, in contrast to many of its competitors, Hewlett-Packard's declared rationale for its commitment to systems integration is not primarily to maximise its position within the European systems integration market, but to support its computer systems business. The key elements of Hewlett-Packard's systems integration strategy are:

- To become a world-class open systems professional services provider
- To provide solutions for the manufacturing and telecommunications sectors
- To focus on technology integration

In the manufacturing sector, Hewlett-Packard has its own mechanical CAD product, but is also targeting systems integration projects based on production management applications.

Hewlett-Packard needs to form partnerships with professional services vendors who are prepared to undertake systems development activities as subcontractors to Hewlett-Packard on large projects. In other instances, Hewlett-Packard may itself be the subcontractor on a project. Ideally, Hewlett-Packard needs to develop working relationships with the major professional services vendors such as Andersen Consulting and Cap Gemini Sogeti.



## COMPANY PROFILE

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### ICL PLC

1 High Street  
Putney  
London SW15 1SW  
United Kingdom  
Tel: 44 81 788 7272  
Fax: 44 81 785 3983

Chairman and Chief Executive: Peter Bonfield  
Status: Subsidiary  
Number of Employees: 26,000  
Revenue (FYE 31-12-91): £1,876 million

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### The Company

ICL PLC, as it is known today, was formed in 1968 by merging the U.K.'s leading indigenous computer suppliers, English Electric Computers and ICT.

In 1984, ICL was acquired by STC to form one of Europe's leading communications and information systems groups, which had a turnover, in 1989, of £2.6 billion.

At the end of November 1990, Fujitsu Limited invested in ICL by taking an 80% shareholding of the company. As a result, ICL is a leading European information supplier within the Fujitsu grouping of companies.

In October 1991 it merged with Nokia Data, strengthening its European operations, and it now has some 26,000 employees. It supplies computing hardware, applications software and services of all types, operating in over 70 countries worldwide.

ICL's headquarters are located in London, England. Its principal manufacturing and development centres are in Europe and the U.S.

Prior to ICL's acquisition by Fujitsu, the company's penetration of Europe outside the United Kingdom remained limited. However there are signs that Fujitsu will encourage ICL to strengthen its coverage of continental Europe, the acquisition of Nokia Data being the first of a number of such moves.

ICL recognised that with the advent of open systems and a steady increase in the number of tenders calling for a total business solution to be installed and made operational in the clients' organisation, the company had to be active in systems integration or risk being relegated to a "box" or software supplier.

ICL is a market-focused organisation dedicated to meeting the requirements worldwide of users in four specific vertical markets--retail, financial services, manufacturing and public administration (central and

local government, health and the utilities). In addition, specialist operations covering transport/travel have been established in Europe.

Europe is ICL's domestic market. ICL plans to be the leading supplier in its chosen markets in Europe in the 1990s. Corporate objectives are to increase turnover and market share with prime focus on Europe, through a policy of acquisitions, mergers, joint ventures and partnerships which fit the business strategy.

It is ICL's policy to collaborate with other leaders in technology globally, and in pursuit of this strategy ICL has partnership agreements with companies in Europe, the United States and the Far East.

### **Organisational Structure**

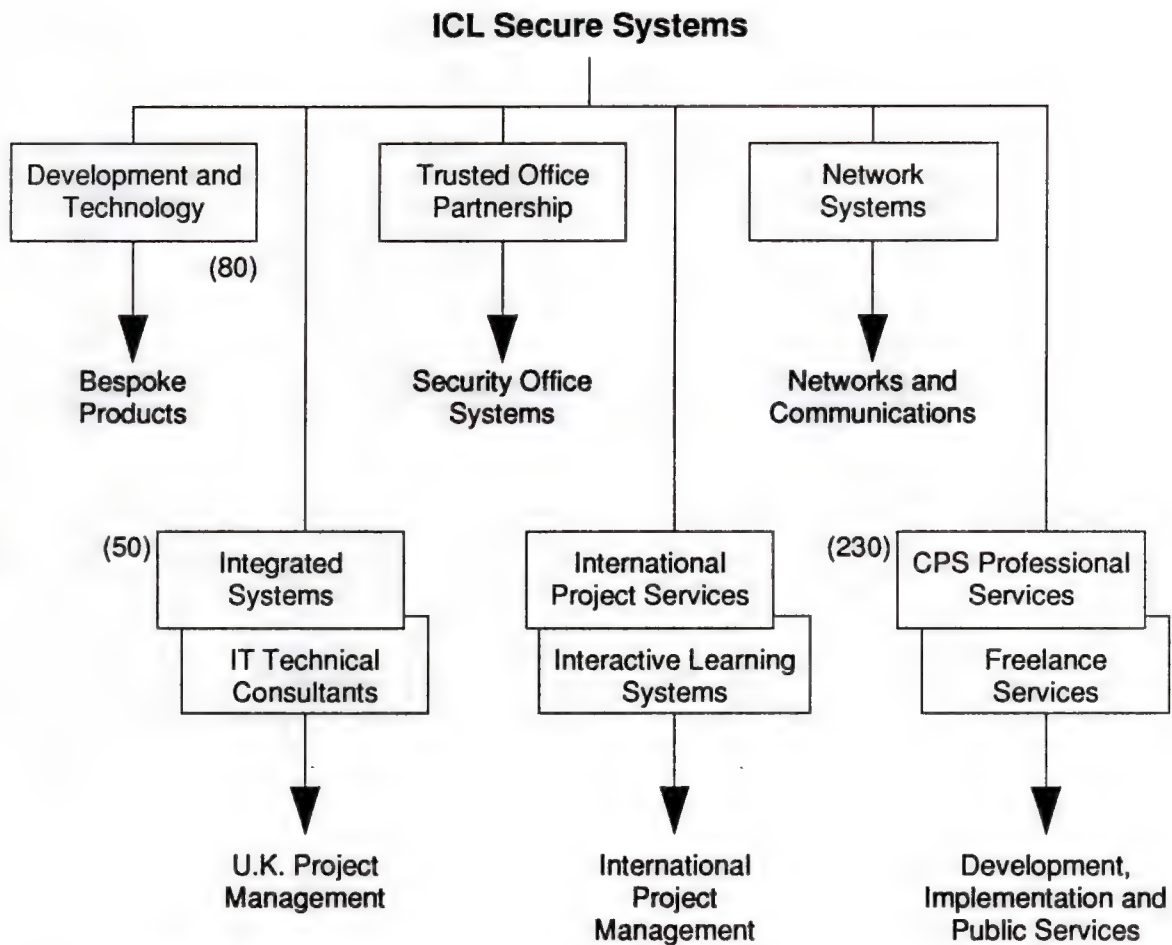
ICL's field operations are organised into business units addressing vertical markets such as the retail sector or manufacturing industry.

In mid-1990 ICL brought together the various parts of the company working on systems integration into one division, ICL Secure Systems.

The nucleus of Secure Systems was the ICL MOD business unit, with its experience in handling large and complex defence contracts.

The current organisation of ICL Secure Systems is shown in Exhibit A. In total, the division employs over 800 personnel.

## Exhibit A



( ) Number of staff

International Project Services manages large-scale international projects. Interactive Learning Systems supplies technology-based interactive multimedia training solutions.

The Trusted Office Partnership (TOP) is a consortium bidding for secure electronic office systems. Its largest project, CHOTS for MOD HQ, runs into hundreds of millions of pounds.

CPS also joined Secure Systems and provides software and applications development and implementation, consultancy, packaged services and authorship.

Network systems provides a wide range of networking capability, particularly network consultancy and multivendor network integration skills.

ICL recognises that the systems integration market is often best targeted through industry-specific account teams, and so sales of systems integration contracts are conducted not by dedicated sales staff within ICL Secure Systems but through the ICL account teams or third parties already working with the prospect. Where appropriate ICL Secure Systems has access to the resources and skills of ICL's industry-specific business units.

## **Acquisition History**

In 1988 ICL established a European Strategy Board to formulate the company's European policy and maximise opportunities which will arise within Europe as a result of the removal of trade barriers at the end of 1992. Sir Michael Butler (formerly British Ambassador to the EC from 1979-85) is Chairman.

Acquisitions by ICL include:

### **February 1988**

Acquired European data systems business of Northern Telecom which strengthened ICL's base, particularly in Holland and Italy.

### **September 1988**

Acquired 50% controlling share of Regnecentralen of Denmark, now renamed RC International (the second largest IT company in Denmark).

### **January 1989**

Acquisition of CCI of the U.S. by STC also strengthened ICL's UNIX and office systems activities.

**January 1989**

Acquisition of Datachecker, Inc., from National Semiconductor. Creates for ICL the third largest in-store retail systems business in the world.

**October 1990**

Acquisition of Databolin Information Systems AB (DBIS), a leading supplier of computer applications software in Sweden and elsewhere in Scandinavia.

**February 1991**

Acquisition of Systems House Comdes BV, a Dutch company specialising in software for the health, financial services and legal markets in particular.

**April 1991**

ICL formed a joint venture company, Guardian Computer Services, to penetrate further the disaster standby market in the U.K.

**May 1991**

Announcement of the merger of ICL and Nokia Data, as a result of which ICL acquired Nokia Data for ú230 million.

Majority 75% shareholding in CFM, a systems operations company serving primarily the public sector in the U.K.

A controlling interest in MCS, which specialises in application software products for the manufacturing sector.

**July 1991**

Formation of joint venture company with Bell Atlantic Business Systems, Inc., of the U.S. to provide total managed services in Western Europe.

**October 1991**

Completion of the merger of ICL and Nokia Data, the leading information technology company in Scandinavia.

**Major  
Recent Projects**

Recent contracts won by ICL include:

**1. New Zealand Auckland Area Health Board**

In October of 1991 ICL won a £7 million contract for the supply of an integrated Hospital Information Support System to New Zealand's Auckland Area Health Board. The software will be developed into an integrated, patient-based information system which will use a single, common database. It will encompass five major hospitals, two mental hospitals, dozens of clinics and extensive support services, that together have some 15,000 staff.

**2. Inland Revenue Council Tax Valuations**

The Inland Revenue awarded ICL a contract valued at over £10 million (October 1991) to supply a UNIX-based system to support the new Council Tax valuation applications. An additional contract valued at £3 million was for the Oracle relational database, tools and consultancy.

**3. Mid-Kent Holdings**

ICL has won a three-year agreement worth £2 million to be sole IT supplier to Mid-Kent Holdings. This will involve provision of a full range of open systems-based hardware, software and services. Novell Network with Windows will be used for access.

**4. MOFER**

The Soviet Ministry for Foreign and Economic Relations (MOFER) awarded ICL a \$3 million contract for the provision of an EDI network service. This is based on TRADANET from INS and as well as tailoring the system to MOFER's special needs ICL is providing implementation services, training and specialist support.

**5. Channel Tunnel**

ICL has recently secured a £4 million systems integration contract to supply the consortium of British Rail, Belgian Railways and SNCF with a system to control the boarding of passengers using the Channel Tunnel Rail Services. ICL is responsible for overall design, integration and implementation of the system. Other members of the consortium are Dassault (Paris) and British Rail--Computing Division.

## 6. European Commission SHINE

At the beginning of the year ICL won a ú5 million contract from the European Commission giving it a major role in the future development of pan-European health care. Project SHINE (Strategic Health Information Networks for Europe) is to be implemented by an ICL project-managed consortium over the next three years. The consortium consists of six other partners and eight associate partners.

### Key Products and Services

#### (i) Technologies

ICL has over 25% of the U.K. Corporate business with an installed U.K. base of more than 1,800 mainframes. The company's strategy for the corporate server market is based on its flagship Series 39 range of mainframes and the Open VME operating system.

ICL has been collaborating with Fujitsu since 1981. The current Series 39 SX and DX systems are designed by ICL and use Fujitsu chip manufacturing processes.

ICL's policy for VME is to continue to develop it in support of Open Standards. At the same time, VME will extend its functionality to meet the continuing demands of corporate users, particularly in areas such as high-capacity databases, high security, self-managing systems, and high transaction throughput.

ICL's CAFS-ISP (Content-Addressable File Store--Information Search Processor) is a combined hardware and software system that allows rapid searches of large quantities of information.

CAFS-ISP is available on all ICL VME mainframes and provides for response times at the terminal up to 60 times faster than conventional techniques.

ICL is strongly committed to open systems, particularly open systems networking. In May 1991, ICL announced its OPENframework architecture and launched its Open Systems Management Centre. OPENframework is a blueprint for distributed computing while the Open Systems Management Centre specialises in the control of open systems multivendor distributed networks.

ICL will continue to place considerable emphasis on Open Systems across its product range. Increasing levels of R&D are being focussed to enable its clients to benefit from standards of interworking, application portability, systems management, security and high throughput Open Transaction Processing.

ICL is also committed to UNIX and Open Systems standards for its departmental and mid-range systems, where its systems are fully conformant to X/Open and Posix standards.

The range is based on operating systems provided by AT&T UNIX Software Laboratories in line with the UNIX International roadmap and all developments are in line with ICL's OPENframework architecture.

ICL was instrumental in the establishment of:-

**UNIX International**, whose aim is to develop UNIX System V Release 4 as the standard operating system for mid-range systems.

**X/Open**, which is promoting a Common Application Environment to allow true portability of UNIX-based applications between different computer systems.

ICL is a founder member of the Standards Promotion and Application Group, SPAG, in which leading European IT companies have been brought together by the European Commission to promote OSI standards. ICL is also a member of: EUROSINET, IGOSINET and COSINE.

ICL has been at the forefront of the OSI movement in Europe since its inception. It has provided numerous specialists to chair the committees responsible for developing standards for X.400 electronic mail, office document architectures and file transfer.

ICL takes an active role in the IT research programmes run under the auspices of the European Commission, e.g. ESPRIT II and EUREKA. It also has a one-third share in an advanced research institute in Munich investigating fifth-generation techniques. This is owned jointly by ICL, Bull of France and Siemens of Germany.

ICL's application development and systems integration facilities will continue to be enhanced through seven key product programmes:

- Office
- User access
- Database
- Networking
- Transaction management
- Systems management
- CASE

Two of ICL's major strengths in systems integration are its networking capability and its expertise in system security.

#### **(ii) Industry Knowledge**

The public sector, including defence, makes by far the largest contribution to ICL's revenues.

Overall, ICL is organised into five industry-specific business units, covering the following sectors in the U.K.:

- National accounts
  - Covering primarily the major utilities
- Local government and health care
- Manufacturing and commercial
- Retail
- Financial services

On a worldwide basis, ICL targets the Retail and Financial Services sectors. ICL Secure Systems also addresses these two sectors worldwide and in addition focuses on:

- IT in telecommunications
- Airlines and ports
- The security/enforcement market

Its security/enforcement capability is a particular specialism of ICL stemming from the company's work for the U.K. MOD. This area is now thought to be growing in excess of 30% per annum and is applicable to the sectors shown in Exhibit B.

#### Exhibit B

##### SECURITY/ENFORCEMENT MARKET

- Banks and Stockbrokers
- Local Government and Health care
- Legal Profession

Detecting financial fraud is obviously a critical application for this technology. The key is not in restricting access to particular transaction types by user but in having the capability to audit each user's pattern of work and identify any deviations from the norm.

Within local government and the health sector, data held on individuals is also highly sensitive, as are briefing details within the legal profession.

The Local Government sector is a major niche market for ICL, while the company claims it is the third most successful vendor of information systems to the retail sector worldwide.

In the retail sector, ICL also claims to be:

- Number 1 supplier of retail information systems in the U.K. with approximately 37% of market.
- Number 1 in French hypermarkets and Italian department stores
- Number 1 in DIY systems in the U.K., U.S., France and Australia
- The supplier of 35% of the market for DIY/home centres in the U.S., and 30% of supermarket scanning in the U.S.

In the public sector, ICL claims to be:

- The leading supplier of information systems to local authorities in the U.K. with over 50% of the installed base
- The leading supplier of the U.K. Central Government and associated departments

In the manufacturing sector, ICL is estimated to have approximately 150 installations of its ONCE production management application software product.

In Scandinavia, ICL owns RCI, and now Nokia Data. The opportunities ICL anticipates from its ownership of Nokia Data, which gives the company much improved coverage of Scandinavia, are shown in Exhibit C.

#### Exhibit C

##### NOKIA DATA

- Majors on big projects
- Concentrates on faster moving markets
- Strong in financial services
- Opportunities in Eastern Europe

Nokia Data concentrates on large projects, often selling, installing and networking thousands of personal computers and their applications within a single project. This means that the organisation is complementary to ICL, whose traditional expertise lies in networking mainframes and minicomputers, giving ICL greater access to the more rapidly growing terminal, personal computer and UNIX-based markets. Nokia Data is particularly strong in financial services, and this range of capability is perceived to be especially applicable to the emerging markets of Eastern Europe.

ICL has also purchased a number of software and services vendors in Europe over the last year including:

- Databolin (Sweden)--specialising in the manufacturing sector
- Comdes (Netherlands)--specialising in the financial services, legal and health care sectors.
- SIAC (Netherlands)

The role of these acquisitions is to extend ICL's expertise in vertical markets and to add systems integration capability.

**(iii) Key Application Software Products**

Despite the increasing emphasis being placed by ICL on software and services, application software products remain a minor component of ICL's overall software product revenues as shown by the following breakdown of software product revenues:

• Operating system	50%
• Software development tools	35%
• Application software products	15%
• Software products	100%

However ICL is endeavouring to increase the proportion of its revenues from application software products and the company invested ú25 million in developing industry-specific solutions in 1991.

ICL's Industry Business Divisions have increasingly invested in the development of industry applications supplied as packages with supporting services to clients. These include the LOGIC II series of applications for Local Government, ONCE and MAX packages for Manufacturing, and Point of Sale software for Retail.

In other cases, such as the OMNIA software in Financial Services, ICL owns the controlling interest in the software and services provider.

ICL's latest UNIX catalogue contains over 750 entries and there are now some 16,000 applications available on UNIX.

One strategic systems software product acquired by ICL is OFFICEPOWER, an integrated office information system, which has 300,000 users worldwide.

**Financial  
Information**

Exhibit D provides a summary of ICL's recent financial performance. Turnover remains approximately static in 1991, though this figure probably disguises a significant fall in revenues from ICL's U.S. operations during the year. However ICL was more successful in Asia and in Central and Eastern Europe during 1990 and 1991, claiming 60% growth in its Asian markets.

The 1991 figures include three months of Nokia Data and 6 months of Sorbus consolidated into the total.

## Exhibit D

## FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenues	1,307.6	1,353.1	1,632.3	1,611.8	1,876.0
Growth Rate (%)	.	3	21	-1	16
Profit after tax	69.9	85.9	94.9	69.0	39.0
Growth Rate (%)	.	23	10	-27	-43

Over the period 1987 to 1991, ICL's revenues have grown at a compound annual growth rate of 9%. Exhibit E shows the key financial ratios for ICL.

## Exhibit E

## KEY FINANCIAL RATIOS

	1987	1988	1989	1990	1991
Revenue per employee (ú000's)	-	-	-	7.5	8.4
Profit per employee (ú000's)	-	-	-	3.3	1.8
Return on capital employed	63.0	57.3	34.9	27.7	18.0
Return on sales	8.5	9.3	8.5	6.9	4.2

## Market Analysis

Exhibit F shows ICL's revenue breakdown by product/service for 1990 and Exhibit G provides ICL's estimates of its revenue breakdown by industry sector.

Exhibits H, I and J show INPUT's estimates of ICL's software and services revenues. Exhibit H provides a breakdown by delivery mode, Exhibit I a breakdown by country and Exhibit J a breakdown by industry sector.

## Exhibit F

## REVENUE BREAKDOWN BY SERVICE, 1990

SERVICE/PRODUCT	REVENUES (£ MILLIONS)	PERCENT
Mainframes	350	22
Distributed Systems	340	21
Customer Services	370	23
Software	240	15
Professional Services	180	11
Networks/Specialist	130	8
<b>TOTAL</b>	<b>1,610</b>	<b>100</b>

Source: ICL

## Exhibit G

## REVENUE BREAKDOWN BY SECTOR 1990

SECTOR	REVENUES (£ MILLIONS)	PERCENT
Central Government	290	18
Local Government	275	17
Public Services	160	10
Retail	275	17
Manufacturing	160	10
Financial Services	130	8
Country Specific Focuses	320	20
<b>TOTAL</b>	<b>1,610</b>	<b>100</b>

Source: ICL

## Exhibit H

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Processing Services	5	1
Turnkey Systems	170	20
Application Software Products	45	5
Systems Software Products	390	45
Professional Services	145	17
Network Services	20	2
Systems Operations	35	4
Systems Integration	45	5
Total Software and Services	860	100

\*INPUT estimates

## Exhibit I

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	75	4
Germany	35	2
U.K.	1096	64
Italy	28	2
Netherlands	40	2
Belgium/Lux	11	1
Spain	15	1
Switzerland	17	1
Austria	8	0
Sweden	139	8
Denmark	65	4
Norway	38	2
Finland	138	8
Ireland	6	0
Greece	1	0
Eastern Europe	9	1
Total Information Service	1720	100

\*INPUT estimates

## Exhibit J

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	85	10
Process Manufacturing	0	0
Transportation	0	0
Utilities	70	8
Telecommunications	15	2
Retail Distribution	145	17
Wholesale Distribution	0	0
Banking and Finance	100	12
Insurance	0	0
Health care	95	11
Education	10	1
Local Government	145	17
National Government	50	6
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>860</b>	<b>100</b>

\*INPUT estimates

**Strategic  
Analysis****(a) Company Direction**

ICL's corporate objectives are to increase turnover and market share in Europe through a policy of acquisitions, mergers and joint ventures. Though ICL has recently improved its coverage of Scandinavia, the company still lacks a significant presence in Europe outside the United Kingdom, and this is inconsistent with the company's objective of being one of the leading IT suppliers in Europe.

ICL is currently targeting four specific market segments--retailing, manufacturing, financial services, and public administration--and recognises the need to continue to invest heavily in software specific to these industries.

ICL regards continuing growth in its software and services activities, which in 1991 represented approximately 50% of turnover, as critical to the company's future success. However ICL is also dependent on the competitiveness of its computer equipment and will continue to rely extensively on Fujitsu's equipment manufacturing and R&D capability to ensure the company's ability to compete in this area.

ICL acquired a number of software and services vendors in 1990 and 1991 in support of its strategy, and it is probable that the company is currently negotiating with a number of software vendors in its key markets, with a view to extending ICL's range of offerings and enabling ICL to acquire key skills.

**(i) Consulting**

ICL characterises systems integration as the "risk" business, and views a lengthy relationship with potential clients as essential to success. A costed PERT analysis is required as a key element in the business approval process for systems integration projects, and this is used to ensure that the project team has sufficient understanding of the client and his requirements. The rule within ICL Secure Systems is that unless the company has been working with the potential client for a lengthy period, a bid should not be put forward.

ICL believes that price is seldom a differentiator on large projects, that the main attribute sought by the potential client is certainty that the vendor can deliver. The acquisition of ICL by Fujitsu has served to reduce the perceived level of risk in using ICL as a systems integrator.

ICL has also moved into the "reputation" business with the formation of IT Partners. IT Partners employs 40 personnel, and although wholly owned by ICL, offers "arms length" management consultancy making use of ICL's expertise in fields such as:

- Quality Management
- Human resource management
- Marketing

ICL finds that the spin-offs from this operation in terms of advance warning of major projects are considerable.

### **(ii) Geographic Coverage**

In 1991, ICL is estimated to remain heavily dependent on its activities in the U.K., with these still contributing over 64% of the company's European information services revenues.

The company is endeavouring to improve its geographic coverage worldwide by means of acquisition and partnerships.

Much of the company's recent activity to extend its geographic coverage has been focussed around Scandinavia and Eastern Europe.

ICL has traded in Eastern Europe for many years and was the first western company to obtain accreditation to establish an office in Moscow. Recent moves towards liberalisation of COCOM rules have resulted in the establishment, by ICL, of two joint ventures in Eastern Europe, as follows:

- Joint venture company Furnel International formed by ICL and eight Polish organisations to supply information systems and training in Poland in December 1987.
- In Russia, Marine Computer Systems (MCS) was formed in 1988 in St Petersburg to develop maritime-related software. Since 1990, MCS has been assembling ICL's range of PCs.

The systems integration arm of ICL, ICL Secure Systems, has a worldwide remit and has carried out a number of major projects in Hong Kong including scheduling systems for Cathay Pacific and Hong Kong International Terminals. However, within the Western region of Europe, the bulk of ICL's systems integration revenues still originate in the United Kingdom.

Extending ICL's coverage of Western Europe is seen as the key to meeting the company's systems integration growth objective, and a major collaboration in continental Europe is perceived as the means by which ICL's coverage can be rapidly extended.

ICL groups Western Europe (excluding the United Kingdom) into three sectors:

- Southern Europe (Spain, Italy, Switzerland and Austria)
- Central Europe (Germany, France and Benelux)
- Northern Europe (Scandinavia and Eastern Europe)

In 1991 ICL formed a European Network Integration Centre in Spain to address large projects in Southern Europe. The main emphasis is on networking led (particularly X.25) projects in Spain together with X.400 projects in Portugal.

ICL is also establishing its own systems integration capability to cover central Europe.

### **(iii) Partnerships**

The equipment R&D capability of Fujitsu is critical to ICL's ability to remain competitive in the supply of computer equipment and ICL also collaborates with technology-based companies such as Sun and AT&T.

Other major partnerships include:

- The formation in 1987 of International Network Services (INS) as a joint venture between ICL and GE Information Services (GEIS) to specialise in paperless business communication services including EDI. ICL claims that INS is the market leader in EDI in the U.K. with over 60% of the market.
- A joint venture software company formed in Spain with IFA, the development arm of the Andalucian Regional Government, in 1988.

The Software Partners Programme links ICL closely with software houses and aims to provide the customer with a greater selection of software

solutions. The Programme consists of collaborative relationships with leading software suppliers which share ICL's commitment to open systems.

Software houses must meet certain financial and technical criteria before becoming a Software Partner, and in return, ICL assists Software Partners to develop, port and market their products on ICL platforms. A support desk, special facilities at ICL's Porting and Integration Centre and on-going technical training and marketing programmes, are all available to Partners.

Since the launch of the programme in November 1990, 25 leading software houses have applied to become Software Partners and associates. Dun & Bradstreet Software, Tetra, Peterborough Software, Midland S/W, Computer Associates, Cyborg, Multisoft and Lucas Management Systems are among those who have already signed Partnership agreements.

Through its CASE Partners Programme, ICL collaborates with leading companies whose software and maintenance tools complement ICL's own CASE products and integrate with ICL's Data Dictionary Systems (DDS). The CASE Partners Programme comprises workbenches and tools addressing the complete application life cycle.

ICL's CASE Partners and their principal products comprise of the following:

- LBMS: Systems Engineer and SSADM Engineer workbenches for VME and UNIX applications, Product engineer, integration and reverse engineering software.
- Softlab: MAESTRO II, integrated CASE environment running on ICL DRS6000 with ICL PCs for VME and UNIX applications
- Intersolv: Excelsior range of workbenches, including Design Recovery
- National Computing Centre: ASSET Analyst workbench for SSADM
- Hoskyns: Project Manager Workbench
- PA Consulting Group: Tetrarch strategic and business planning tool
- Software One: Exchange gateway product for integration of CASE environments around ICL's Data Dictionary System

ICL markets the Advanced Development Dictionary (ADD) available under UNIX through a collaborative agreement with the SEMA Group.

INGRES is ICL's preferred 4GL relational database management system. It runs on the whole networked product line--from PC to mainframe. It has a fully integrated development environment with both user and application developer facilities and tools.

INFORMIX is marketed by ICL and supports the largest portfolio of application packages on UNIX.

Oracle is fully supported on ICL platforms.

IDMSX is ICL's Codasyl database for mainframe systems.

Quickbuild, INGRES, ACCELL and INFORMIX comprise ICL's primary 4GL application development environments.

ICL markets Quickbuild Work Bench for 4GL programming and Programmers Workbench and Microfocus PC Workbench for COBOL environments and the Information Systems Engineering Environment for integrated relational applications development on UNIX. These are complemented by the full range of CASE Partner products.

In systems integration, ICL, like many other systems integrators, finds that collaborators on one project can be competitors on the next. In the U.K., ICL has worked closely in the past with:

- Coopers & Lybrand
- Deloitte Touche
- Sema Group
- P-E
- PA
- CSC

For the Ministry of Defence CHOTS project, ICL is leading a consortium including: Hewlett Packard, Data Logic, BICC and Coopers & Lybrand.

ICL also believes in establishing partnerships with its customers on systems integration projects and working closely with them. This approach often leads to the development of products which can be more widely marketed by ICL and the client afterwards. For example, the airline scheduling system developed for Cathay Pacific will be offered to other airlines.

#### **(b) Strengths and Weaknesses**

ICL's acquisition by Fujitsu has contributed significantly to ICL's perception in the marketplace. Previously there were always doubts regarding ICL's financial stability and its ability to remain competitive in equipment manufacture. These doubts have been largely dispelled by the company's acquisition by Fujitsu. This acquisition guarantees ICL's continued access to advanced equipment R&D and manufacturing processes and provides an aura of financial stability which is essential for the company to win large equipment supply and systems integration contracts.

ICL's geographic coverage of the European market remains poor, particularly in France and Germany, though the company has significantly strengthened its position in Scandinavia and is well positioned to target Eastern Europe.

Similarly, while ICL in the United Kingdom has a strong presence in the government, manufacturing and utilities sectors, the company only specifically targets the retail sector and financial services companies outside the United Kingdom. ICL has traditionally had difficulty in building up comparable portfolios of industry-specific application software products compared to competitors such as Digital and IBM, and while the company is actively addressing this shortcoming, it remains a concern at the present time.

Management consultancy capability is often viewed as desirable to assist in gaining access to systems integration projects, many of which start life as business process re-engineering projects. Although ICL employs 40 consultants within IT Partners, the company lacks the depth of consultancy capability possessed by competitors such as Andersen Consulting and being assembled by competitors such as Cap Gemini Sogeti and IBM.

Additional strengths within ICL include the company's commitment to open systems, its network integration capability and its expertise in secure office automation.

**(c) Conclusions**

ICL, like many of the leading equipment vendors, recognises the need to provide total business solutions or become relegated to a "box" supplier and incur the low margins and high levels of competition associated with that business.

ICL has the capability to become a second-tier, if not the leading, systems integrator within the U.K. However, the company's systems integration presence outside the U.K. is extremely limited. If the company is to become a major player in systems integration across Europe, then it will need considerable financial support from Fujitsu to make the necessary acquisitions.

In the U.K., ICL is a major systems integrator to central government and in particular the MOD, and is continuing to develop its presence in the retail sector.

ICL's business consultancy activities are currently very limited and the company's project capabilities are limited in comparison with those of the major professional services vendors.

ICL considers itself to be in a strong position for two reasons, namely the financial stability of its parent, Fujitsu, and its strategy emphasising open systems and software and services.

ICL considers Europe as its domestic market. ICL plans to be the leading supplier in its chosen markets in Europe in the 1990s. Corporate objectives are to increase turnover and market share with the prime focus on Europe, through a policy of acquisitions, mergers, joint ventures and partnerships which fit the business strategy.

It is ICL's policy to collaborate with other leaders in technology globally, and in pursuit of this strategy ICL has partnership agreements with companies in Europe, the United States and the Far East.

**(d) Strategic Assessment--ICL**

At one time the 'lame duck' amongst the European system vendors, ICL emerged as the most profitable by the end of the 1980s through a policy of technology dependency on Fujitsu and strong commercial management of its operations. Its absorption into the Fujitsu group finally laid to rest any concerns over its future.

Today ICL is embarked upon a series of initiatives targeted at achieving leadership positions in Europe in open systems, PCs and software services. One important element of their strategy to achieve this is the development of joint ventures (e.g. the SORBUS initiative) designed to penetrate key market sectors.

In the future we can expect ICL to make significant progress in the development of its systems integration contracting business. Its technology and financial strength are assured by Fujitsu. The development of strong, product-based offerings to target specific areas, e.g. retailing (EFTPOS terminals) and banking (ATMs), is expected to be a winning strategy.



### **INTERGRAPH EUROPE, INC. (European Headquarters)**

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2130 AH Hoofddorp  
The Netherlands  
Tel: 31 2503 66 333  
Fax: 31 2503 66 414

Vice President: Manfred Wittler  
Status: Subsidiary  
Number of Employees: 2,045 (Europe)  
Revenue (FYE 31-12-91): \$ 406.40 million  
(Europe)

### **INTERGRAPH CORPORATION Corporate Headquarters**

Huntsville  
Alabama 35894-0001  
U.S.A.  
Tel: (205) 730 2000  
Fax: (205) 730 2461

President: Elliott D. James  
Chairman and CEO: Jim Meadlock  
Status: Public (OTC NASDAQ)  
Number of Employees: 10,300 (Worldwide)  
Revenue (FYE 31-12-91): \$1,195 million,  
(Worldwide)

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### **The Company**

Intergraph Corporation of the U.S. was incorporated in 1969 as M&S Computing Inc.; it designs, manufactures, markets and supports interactive computer graphics systems, including hardware and application software. Intergraph Europe, Inc. in the Netherlands is the European headquarters. In addition, the company provides a variety of third-party packages, increasing its software offerings in technical applications, networking, database management and software development tools.

Intergraph is represented in Europe through subsidiaries in Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the U.K.

In 1991, Intergraph opened offices in Czechoslovakia, Poland and former East Germany to position itself for emerging business in the former Eastern Bloc.

Intergraph also has offices in the U.S., Canada, Asia and the Middle East.

Worldwide revenues in 1991 were \$ 1,195 million and European revenues were \$ 406.40 million.

As of December 1991, Intergraph employed 2,045 staff in Europe.

Exhibit A

**1991 EMPLOYEE CHART BY EUROPEAN COUNTRIES**

COUNTRY	NUMBER OF EMPLOYEES
Austria	15
Belgium	25
Denmark	30
Finland	40
France	185
Germany	500
Italy	100
Netherlands	450
Norway	45
Portugal	25
Spain	110
Sweden	75
Switzerland	50
U.K.	360
Czechoslovakia	10
Poland	10
Hungary	5
Greece	5
Russia	5
<b>TOTAL</b>	<b>2,045</b>

**Recent  
Acquisitions**

In March 1989, Intergraph exchanged its 82% ownership in Tangent Systems Corporation for shares of Cadence Design Systems.

In December 1990, Intergraph acquired for, \$14 million, the Daisy Systems Corporation and its wholly owned subsidiary Daisy/Cadnetix Inc. (DAZIX). DAZIX is engaged in the design, manufacture, marketing and service of electronics design automation (EDA) software and hardware tools.

**Major Recent  
Projects**

Examples of applications supplied in Europe are as follows:

- Modular GIS Environment tools to the Polish Army to aid development of their maps for purchase in the open market
- GIS and CAD tools to the Amsterdam municipality for urban planning, design, engineering and construction
- Supply of Intergraph's architecture, civil engineering, GIS and scanning applications to Frankfurt airport in Germany
- 3D applications to the YRM Partnership, which created design views for a proposed passenger exchange terminal for the Channel Tunnel
- Supply of the Visualisation tools, Modelview and InRoads software to Ove Arup and Partners to help visualize its design for the Harbour roadworks project in Jersey
- Supply of Intergraph CAD to Nuclear Electric in the U.K., which uses it to model and engineer equipment
- Supply of electronics design automation software from DAZIX to electrical product manufacturers Bang and Olufsen in Denmark.

**Key Products and Services**

The major markets addressed by Intergraph are as follows:

- Mapping and Geographic Information Systems
- Visualisation
- Architecture, Engineering and Construction (AEC)
- Utilities
- Mechanical Design, Engineering and Manufacturing
- Electronics Design Automation.

**Mapping and Geographic Information Systems:**

Intergraph's image processing systems are used for urban planning, environmental and natural resource management, cartography, and energy exploration and production. The company expects that as more people find uses for geo-referenced information, the GIS market will grow substantially.

In 1991 the company introduced a suite of image processing products, the Modular GIS Environment (MGE) ImageStation software. The MGE modules are graduated in complexity from entry level to full function, giving users the flexibility to match the system to the task. For high-performance imaging, the ImageStation 6187 was introduced, the industry's first image processing workstation with an integrated, parallel architecture that allows simultaneous viewing and manipulation of vector and raster data on a single screen.

**Visualisation:**

Intergraph's primary visualisation software package, ModelView, is used to create video animations and photo-realistic renderings. ModelView allows customers to analyse and refine projects during design and brings sophistication to design reviews and presentations. In 1992 a newly formed visualisation group will function as a separate business unit, marketing animation and visualisation services as well as software.

1991 software revenues in this area increased by 67% over 1990.

**Architecture Engineering and Construction (AEC):**

Intergraph continues to lead the AEC market, with 1991 systems revenues increasing more than 10% over 1990 levels. During 1991, the company announced the availability of the Intergraph Plant Design System (PDS) on UNIX workstations. The UNIX version of PDS offers multidiscipline capabilities of the original VMS software but adds a more intuitive user interface and industry-standard relational database technology. In 1991, Intergraph extended its integrated suite of architecture, facilities management, and building services applications to full 3D capabilities.

**Utilities:**

The company estimates that it has the largest share of the automated mapping and facilities management market.

Among the division's new customers in 1991 were Consolidated Edison Company of New York, with a contract for \$12.6 million, and the Indianapolis Power and Light Company.

**Mechanical Design, Engineering, and Manufacturing:**

1991 revenue from sales of mechanical software applications was up slightly for the year. During the year Intergraph introduced a greatly expanded version of its Engineering Modelling System (I/EMS, version 2.0), which supports variational geometry and provides advanced capabilities for design optimisation.

**Electronics Design Automation (EDA):**

In 1991, Intergraph consolidated its Electronics Design Division and Daisy/Cadnetix Inc. (DAZIX). Support of DAZIX customers has now been completely integrated with Intergraph's service offerings worldwide. Intergraph claims that DAZIX is the third largest EDA vendor in the world. Intergraph is confident that its unified product line will strengthen its position in the EDA market.

**New Markets:**

Intergraph has entered a number of new markets. Among these are technical information management, despatch management, graphic arts and publishing, scanning and plotting. The company expects growth in all of these areas.

**Financial  
Information****Exhibit B****FIVE-YEAR FINANCIAL SUMMARY FOR INTERGRAPH CORPORATION  
(FYE 31-12) (WORLDWIDE REVENUES)**

YEAR	1987	1988	1989	1990	1991
Revenue (\$M)	641.1	800.1	860.0	1,045.0	1,195
Annual Growth Rate (%)	6	25	7	22	14
Profit before Taxes (\$M)	115.8	138.8	119.3	98.3	111.9
Annual Growth Rate (%)	-6	20	-14	-18	14
Profit after Taxes (\$M)	69.9	88.0	79.5	62.6	71.1
Annual Growth Rate (%)	-1	26	-10	-21	14
EPS (\$)	1.23	1.55	1.48	1.28	1.47

**Market Analysis****Exhibit C****1991 MARKET ANALYSIS - INTERGRAPH CLASSIFICATION**

	1990 Revenues (\$ Millions)	Percent
Systems	860.4	72
Services	334.6	28
<b>TOTAL</b>	<b>1195.0</b>	<b>100</b>

## Exhibit D

**1991 MARKET ANALYSIS BY GEOGRAPHIC AREA**

GEOGRAPHIC AREA	REVENUE (& MILLIONS)	PERCENT
U.S.	645.3	54
Europe	406.3	34
Other	143.4	12
<b>TOTAL</b>	<b>1,195</b>	<b>100</b>

Source: Intergraph

## Exhibit E

**1991 MARKET ANALYSIS BY DELIVERY MODE  
EUROPEAN INFORMATION SERVICES**

Delivery Mode	Revenues* (\$ Millions)	Percent
Turnkey Systems	265	65
Application software Products	35	9
System Software Products	35	9
Equipment Services	70	17
<b>TOTAL</b>	<b>405</b>	<b>100</b>

\* INPUT estimate of European Information Services Revenues

The proportion of Intergraph's revenues derived from application software products rather than turnkey systems is expected to increase over the next few years as PC-based/CAD software increases its share of the market still further. This trend should accelerate further now Intergraph has started to reduce its dependence on its proprietary workstations.

## Exhibit F

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES**

Industry Sector	Revenues* (\$ Millions)	Percent
Discrete Manufacturing	230	70.0
Process Manufacturing	50	15.0
Utilities	5	1.5
Telecommunications	5	1.5
Local Government	5	1.5
Business Services	5	1.5
Other	30	9.0
<b>TOTAL</b>	<b>330</b>	<b>100</b>

\* INPUT estimate

Note: Excludes Hardware Maintenance revenues.

## Exhibit G

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN INFORMATION SERVICES**

Country	Revenues* (\$ Millions)	Percent
France	44	11
Germany	129	32
United Kingdom	73	18
Italy	24	6
Netherlands	28	7
Belgium/Luxembourg	8	2
Spain	24	6
Switzerland	12	3
Austria	4	1
Sweden	24	6
Denmark	8	2
Norway	8	2
Finland	12	3
Portugal	4	1
<b>TOTAL</b>	<b>405</b>	<b>100</b>

\* INPUT estimate

Note: Includes Hardware Maintenance revenues.

## Company Strategies

### Company Direction

Intergraph has spent the last two decades developing computer graphics solutions for the following industries:

- Automotive
- Aerospace
- Transportation
- Mapping
- Publishing.

The company plans to continue with its strategy of being a total integrated solutions supplier to these markets, providing workstations and servers, systems software, application software and tools for information management.

Intergraph has viewed 1991 as a year of preparation and positioning for the future. Investment was made in the development of a number of new applications and a dual-platform strategy formed for its electronic design and mechanical software. The company also broadened its MicroStation offerings to include Sun and Hewlett-Packard workstations, aiming to position MicroStation as the CAD standard for the workstation market.

Intergraph believes these developments will provide an opportunity to sell integrated software solutions to a larger market.

Intergraph plans to increase its activities within Europe, which currently accounts for 34% of total revenues.

In support of this strategy, the company has opened new distribution channels in the form of "Solutions Centres". Intergraph believes that these centres will reach a portion of the market not covered by its direct sales force.

In addition, a European Porting Centre will be opened in 1992 to attract independent software developers to port their applications to MicroStation.

Intergraph's strategy also focuses on Eastern Europe. The company has established a presence in this emerging market by opening offices in Czechoslovakia, Poland and former East Germany.

**Conclusions**

Workstation/server-based applications continue to dominate Intergraph's product mix, while sales of the larger and higher priced VAX-based systems have declined to an insignificant portion of the company's business. The future operating results of the company depend largely on its ability to rapidly and continually develop and deliver new hardware and software products that are competitively priced and offer enhanced performance. The company believes its offerings are responsive to market and competitive demands.

The company continues to sign agreements with leading independent software vendors to port software to the company's workstations and servers, increasing the number of third-party software packages to over 700.

In 1991, Intergraph made a move away from its proprietary Clipper equipment architecture with an announcement of a dual-platform strategy for its electronics design and mechanical design software. These applications are now available on both Clipper and Sun Microsystem's SPARC platforms with full marketing, sales, and support from Intergraph.

## COMPANY PROFILE

**INTERNATIONAL BUSINESS  
MACHINES (IBM)**

Old Orchard Road  
Armonk, NY 10504  
Tel: (914) 765 1900

Chairman: John F. Akers  
Status: Public  
Number of Employees: 344,396  
Revenue (FYE 31-12-90): \$64.7 billion

**The Company**

IBM is the world's largest vendor of computer hardware and related software and services. The company has traditionally been known more for its marketing strength and customer support than technical leadership. IBM has the broadest product line of any supplier and services virtually all industry sector markets. In 1991, IBM reported worldwide revenues of \$64.7 billion with net losses of \$564 million.

IBM has a very broad set of competitive capabilities in the market. Although it still controls over 50% of the U.S. computer market (70% for mainframes) it only has about 20% of the worldwide market, down from a 30% market share in 1985.

To overcome its growth difficulties of the past few years, IBM has taken a series of drastic actions to reduce cost and expenses, to streamline its structure, and to sharpen its worldwide competitiveness.

It has consolidated manufacturing capacity and reduced the layers of management. By the end of 1992, the number of overhead and indirect positions will have been reduced by 80,000, while maintaining the company's tradition of full employment. It has accomplished this by offering a number of financial incentives and early retirement plans. It has increased by 23% the number of people working directly with customers. To function better in a marketplace that is increasingly more interested in buying integrated system solutions rather than specific products for specific tasks, IBM organised its Applications Solutions (AS) line of business in 1988. Since the inception of AS, IBM has worked hard to convert a marketing organisation that is product-sales oriented to one that is focused on providing solutions to its customers. Systems integration has become a major vehicle, which AS has used to design and implement industry-specific solutions.

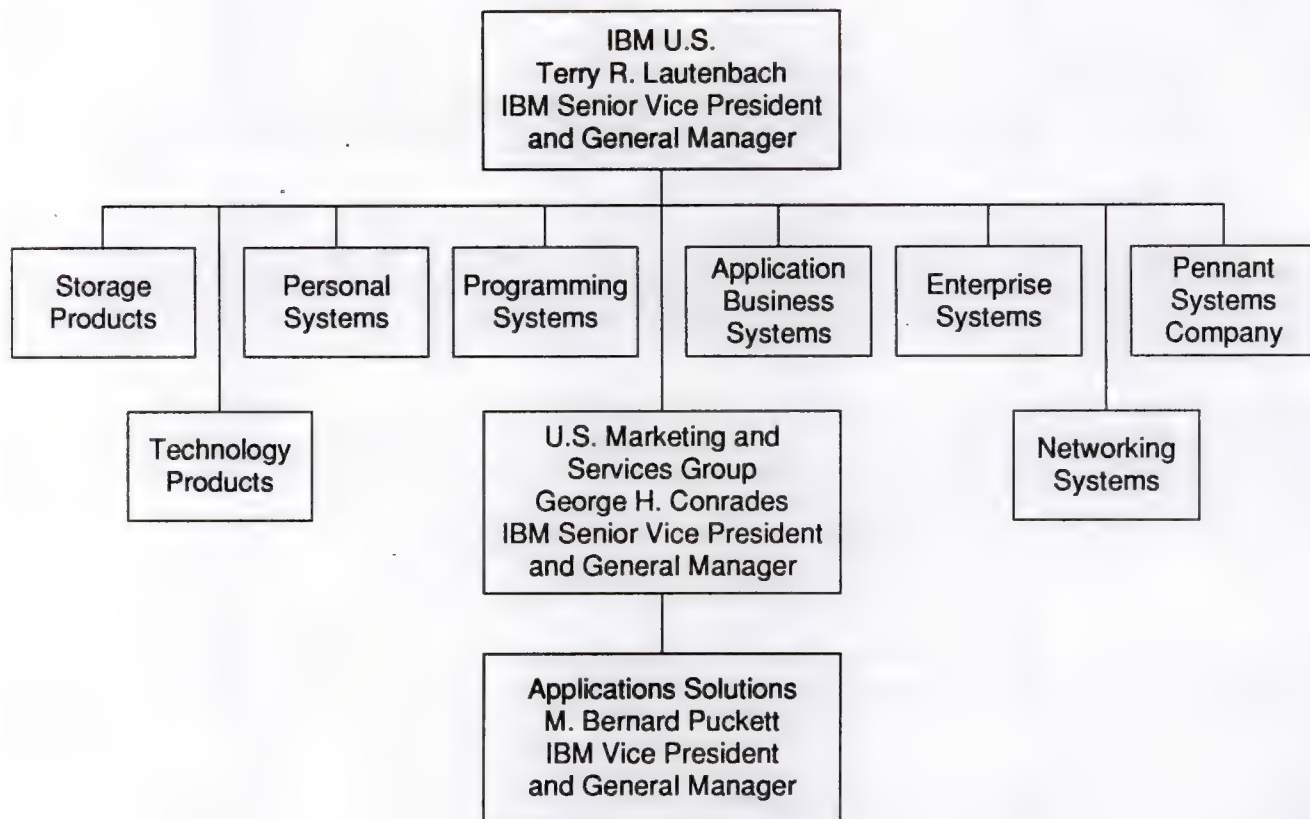
**Organisational  
Structure**

IBM is organised into four geographical areas. These are its U.S. operations, IBM Europe/Middle East/Africa, IBM Asia Pacific and IBM Americas.

In the Europe/Middle East/Africa organisation, European operations accounted for approximately 95% of revenue in 1991, 1990 and 1989.

Exhibit A illustrates the IBM/U.S. organisation.

Exhibit A

**IBM Organisation Structure**

The responsibilities of the nine business units are:

*Application Business Systems*--develops and manufactures processors and related software for small and medium-sized businesses, and departments of large companies.

*Enterprise Systems*--provides enterprisewide solutions involving the development and manufacture of IBM's largest general-purpose processors, operating systems, systems software, and supercomputing offerings.

*Networking Systems*--provides products and services for operating and managing networks that deliver information electronically to users within an enterprise and externally to customers, suppliers, distributors, and others.

*Pennant Systems Company*--develops and manufactures IBM's printers and printing solutions, including advanced-function printers, software and printing services.

*Storage Products*--develops and manufactures a range of direct access storage devices, tape drives and optical storage devices, and their associated software support.

*Technology Products*--develops and manufactures logic and memory chips and electronic circuit packaging used in IBM products.

*Personal Systems*--develops and manufactures personal computers and high-performance workstations and their operating systems, as well as multimedia graphics and display systems.

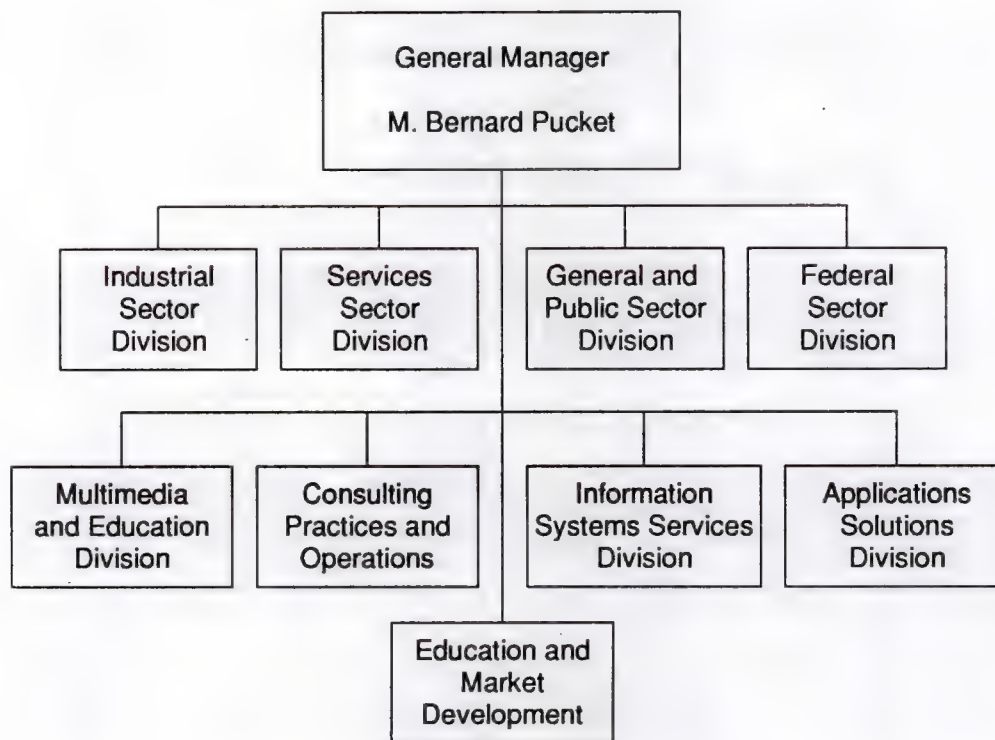
*Programming Systems*--develops software for data management, office systems decision support and application development, and the architecture that provides a consistent structure for software across all lines of business. Manufactures and distributes software.

*Application Solutions (AS)*--is the focal point for providing total solutions and systems integration services within IBM. When originally established in early 1988, it brought together the ISG Industry Marketing organisation, the Federal Systems Division, the IBM Information Network, the Systems Integration and Professional Services business unit, and the Applications Software Division. (The IBM Information Network was moved from AS in early 1989).

Since its inception, IBM has continued to adjust AS to increase its focus on identifying, developing, and providing total application solutions. The Industry Marketing organisation, now strengthened, has become the cornerstone of this strategy. When AS was formed, a single assistant general manager was responsible for industry marketing support and vertical and cross-industry solutions identification and development. Today there are five IBM vice presidents and general managers, each focused on a set of industries or sectors. The five sectors are industrial, services, general and public, federal, and multimedia and education. Each sector's general manager focuses on the applications solutions required by the industries within his or her sector, and provides industry consulting to the field marketing organisation and its customers. The current AS organisation is shown in Exhibit B.

Exhibit B

**IBM Applications Solutions  
Line of Business**



The sectors were strengthened by adding industry- or sector-unique capabilities that were formerly in other IBM organisations. For example, functions from the Charlotte Laboratory and consumer terminal development and manufacturing areas, formerly in the Information Products Division, were added to the services sector, and parts of the Endicott Lab and Application Software Division CIM products organisation folded into the Industrial Sector Organisation.

There are two other divisions in AS providing information services to IBM's clients. They are the Applications Solutions Division, which develops cross-industry software, and the Information Systems Services Division, set up in early 1991, which provides systems operations services.

The Education and Market Development division has the responsibility for the excellence of IBM's professional services resources, as well as the development of AD/Cycle.

In February 1991, Robert M. Howe was named General Manager, Consulting Practices and Operations, reporting to Bernard Puckett. Mr. Howe joined IBM from Booz, Allen & Hamilton, where he was senior vice president responsible for the financial services practice. This event is of importance because it addresses an area--business consulting--where IBM has been considered weak. It is unusual for IBM to go outside to fill a key executive position, which re-emphasises the importance of business consulting to IBM's total solution strategy.

**Acquisitions****1. IBM Collaboration Initiatives**

Exhibit C lists some major collaborative alliances undertaken by IBM. The collaboration announced between IBM and Apple represented a significant reversal of conventional marketing thinking, given IBM's historical links with Microsoft.

Exhibit C

**EXAMPLES OF IBM COLLABORATIVE VENTURES**

COMPANY	DESCRIPTION
Apple/Motorola	Development and licensing agreement
LOTUS	Marketing and development agreement for <i>Notes</i> and <i>cc: Mail</i> .
Wang	<i>June 1991.</i> IBM states intention to invest \$100 million. Wang has agreed to port image processing software onto IBM system platforms.
Novell	<i>February 1991.</i> An agreement to market and develop networking products which compete with those IBM developed with Microsoft.
Coopers & Lybrand	Joint marketing venture in the manufacturing sector
Thomson Data Images SA	IBM has a 49% stake in this joint venture with Thomson SA to develop RS/6000 applications products.
Keon	Joint venture company in Spain to address digital document processing applications.
Bank Degroof	Joint company formed in Belgium to develop banking applications.
Servicios de Informacion Geografica SA	<i>December 1991.</i> Joint venture of IBM Espana (51%) and Trabajos Catastrales Tracasa (49%) to market geographical information products and services.
Systems Facilities Service BV	<i>June 1990.</i> Joint venture between IBM Nederland and HCS Technology NV to provide installation and support services for IBM mainframe systems.
Computer-Systemdienste	<i>October 1990.</i> Joint venture between IBM GmbH Deutschland and Robotron Acosta AG to exploit systems and services opportunities in the former East Germany.

## Exhibit C (Continued)

COMPANY	DESCRIPTION
AD/Consultants SA	Joint venture with Cap SESA SA (51%) to provide software engineering workshop services based in AD/Cycle.
ISITEC SA	October 1990. Joint venture with Soleri-Cigel SA (51%) in France to offer systems integration services to financial institutions.
Tournet SA	November 1989. Joint venture to offer value added network services.
Axone	Formed in 1987. IBM (45%), SEMA Group (25%), Credit Agricole (30%) to offer systems operations services.
Danet AS	A 50/50 joint venture between IBM and the Danish Telecom to offer value added network services.
Intesa	A Fiat/IBM joint initiative set up in 1988 to provide information services.

Announced on July 3rd 1991, the partnership is designed to cover four areas of co-operation:

- The development of *object-oriented* software (Taligent joint-venture)
- The development of further software interfaces between the Macintosh and IBM PCs
- IBM to licence Motorola to build its RISC chip for inclusion in future Apple products
- The development by IBM and Apple of a *multimedia* system that integrates desktop PC, video, stereo sound and computer games capability (Kaleida joint-venture)

IBM's continuing problems with the establishment of OS/2 as a de facto standard in the face of the runaway acceptance of Microsoft Windows in the market has led to the desirability of extending IBM's sphere of influence into the formerly alien Macintosh market. From Apple's perspective the pressure to find partners to absorb part of their R&D burden was becoming critical.

John Sculley, Apple CEO, is on record as stating that IBM-Apple-Macintosh was interested in finding a European partner to join in these collaborative efforts.

IBM and LOTUS announced in June 1991 a collaborative agreement, declaring it to be one of the most significant partnerships yet. The agreement is designed to:

- Enable IBM to sell the groupware package *Notes* and the electronic mail system *cc: Mail* as part of its Officevision family of integrated office automation programs
- Enable IBM to include parts of these products in future versions of OS/2
- Lead to joint development projects of IBM and LOTUS

Development work envisaged includes a common messaging system for *Notes*, *cc: Mail* and *Officevision/2 Lan*.

The collaboration gives IBM the opportunity to plug gaps in its current software portfolio. It provides Lotus with an opportunity to gain a stronger position in the groupware market, particularly in larger enterprises.

IBM has formed a joint-venture consultancy and services company, Meritus, with Coopers & Lybrand. Initially active in the United States, the joint-venture is targeted at supporting manufacturing companies in the consumer package goods, pharmaceuticals, aerospace, defence and automotive industries.

IBM Espana SA has taken a 30% stake in a new company Keon (May 1991), capitalised at \$833,333. Other partners are Banco Bilbao Vizcaya SA, (30%) Iberduero SA (30%) and Socintec SA (10%). The company aims to specialise in technical software for digital document processing and industrial applications based on expert systems.

IBM Belgium set up during 1991 a 50/50 joint-venture company capitalised at \$3 million with Bank Degroof, Finance Technology SA/NV to operate in Belgium and Luxembourg. It has been established to develop a modular suite of banking software aimed at applications for banks with less than 1000 staff. The systems are to be based on AS/400 platforms.

Tournet SA, capitalised at \$3.7 million in November 1989 with IBM Belgium holding a 40% stake, SEMA Belgium 20% and CODITEL SA 40%, was formed to offer value-added network services (VANs) to the European travel industry.

In addition to collaborative ventures IBM has also executed a policy of taking equity stakes in existing companies. Some examples are given in Exhibit D. IBM's motivation seems to have been principally one of gaining more control over the product development policies of these companies, and marketing agreements have usually existed as well for channelling software products to customers.

## Exhibit D

## EXAMPLES OF IBM EQUITY INVESTMENTS

COMPANY	DESCRIPTION
Dassault Systems	Announced in <i>November 1991</i> , an undisclosed equity stake.
Industrial Computing Designs Corp.	Undisclosed majority stake taken in <i>July 1991</i> .
Enator	Minority stake in Swedish-owned professional services company specialising in airline systems.
PAXUS	IBM has a 15% stake in this Australia-based insurance industry applications product vendor.
Quality Software Products	10% stake in QSP, a U.K.-based accounting applications product vendor.
Hogan Systems	In <i>September 1990</i> takes 5% stake.
Techgnosis	IBM Belgium acquired a 25% stake in this subsidiary of Gnosis NV, <i>August 1990</i> . The company provides PC software products for database access.
Policy Management Systems	A 20% equity interest worth \$116.5 million at time of purchase-- <i>July 1989</i> .
American Management Systems	\$18 million equity stake-- <i>July 1989</i> .
Image Business Systems	\$6 million investment <i>June 1989</i> .
I/Net	\$4.3 million investment <i>June 1989</i> .
Computer Task Group	\$21.1 million for a 15.3% stake to be increased to 19.9% <i>June 1989</i> .
Geographic Systems	Marketing and Development agreement 1989.

IBM has also developed collaborative agreements and services through IBM's marketing organisation. In practice control over R&D policies, particularly in respect of open systems platforms is probably frustrating the original objectives. It can therefore be expected that IBM will reverse out of many of these equity participations, placing more emphasis on joint ventures where control can be exercised through 50/50 ownership agreements.

IBM has also developed collaborative agreements specifically to support its own R&D objectives. For example, IBM and Siemens AG announced in July 1991 a joint manufacturing venture to produce the world's most advanced memory chip.

Also in September 1991, IBM announced a joint development agreement with Thinking Machines, the computer system company with the reputation of being a leader in the field of massively parallel supercomputing.

The intention is for the two companies to develop links between IBM's mainframe computing environment and Thinking Machine's Supercomputers, as well as to undertake joint development of supercomputer software.

IBM also has an alliance with Supercomputing Systems, a company formed only in 1989 by Steve Clen, a leading authority on supercomputing design.

### **Key Technologies and Skills**

**Service and repair**--IBM possesses outstanding integral strengths in service and repair. Capabilities include wide geographic coverage, an efficient parts distribution and support network, second- and third-level support personnel in branches, remote diagnostic centres, and a problem/solution/fix status data base called RETAIN. IBM will support other vendors' products as well as its own.

**Software maintenance**--IBM has an outstanding software maintenance capability that contains most of the same support elements as hardware support, described below.

**Design and integration**--IBM's federal organisation developed effective software, systems engineering, and integration and test skills and practices to address federal contracts. During the late 1980s, when federal and commercial resources were included in the Systems Integration Division, many of these disciplines were transferred to the commercial professional services and SI organisation.

**Project management--**IBM's significant experience in very large federal SI projects caused it to develop a strong set of programme management practices. These practices are well documented and have been transferred through education programs to IBM's commercial and non-U.S. SI personnel. IBM will most likely rely on its Federal Sector Division for programme management skills for very large commercial projects, and its field professional services organisation to manage smaller ones.

**Software development--**IBM has a great deal of experience developing complex systems software. It has less experience in applications software. Its application solution strategy is based on a variety of application packages, many developed by equity partners, that IBM will tailor to meet its clients' needs. When a great deal of custom software development is required, IBM currently looks to subcontractors, who generally have a lower cost structure than IBM. As AD/Cycle becomes available, INPUT expects IBM will use its own personnel more for developing custom software.

**Education, training and documentation--**IBM has extensive and highly respected capabilities in the area of technical training, resulting from its need to train its customers on its products. IBM offers education across the broadest range of topics and provides the greatest geographic coverage of any vendor. IBM has also applied advanced technology, such as satellite communications, to provide quality, cost-effective education.

**Packaged application software--**Though IBM has developed packaged application software, few of its internally developed products have gained wide acceptance. Under its application solutions strategy, it has identified industry-specific applications architectures and identified software vendors that can supply components that IBM does not have. In some cases IBM has taken equity positions in firms that have existing application packages or the industry knowledge and skills to assist IBM in building its own.

**Packaged systems software--**Systems software is one of IBM's major strengths. There are few practical alternatives to the industry standards IBM has established in the mainframe area with MVS, CICS, IMS, and DB2. IBM offers effective systems software programs on its smaller systems; however, it still needs to solve all of the interoperability and connectivity issues among minicomputers, microcomputers, and mainframes. It is solving this problem through systems applications architecture (SAA) and is beginning to support open systems architecture.

**Standard computer hardware--**Computer hardware is another major area of IBM strength. IBM is the world leader in terms of the breadth and depth of its product line. This advantage has, at times, slipped away, as highly focused companies such as Apple, SUN, and Tandem produced superior products. While IBM's hardware offerings have, in the past, suffered from lack of compatibility and poor connectivity, IBM's new families of products--PS/2, AS/400, System/390 and SAA--have placed IBM in a strong competitive position.

IBM will almost always bid its own hardware. The exceptions to this are limited to areas where IBM lacks specialised hardware components, where IBM does not have a product, where its product does not meet specifications, or where the customer has specified another vendor's equipment.

IBM also has a complementary products organisation that negotiates with other computer industry vendors to add non-IBM products to the IBM sales manual. This is used in cases where IBM does not have a product that is required by the IBM customer set. These products can carry either the IBM or the other vendor's logo.

**Custom computer hardware--**IBM also has a custom hardware development organisation. It develops products to satisfy weaknesses in the product line. These products usually are industry-unique terminals and terminal modifications, and the systems and applications software modifications required to include them in an IBM systems solution.

**Communications hardware--**IBM offers a limited series of communications controllers, modems, multiplexers, and diagnostic units. Through Rolm, it gained a set of superior telephony products, but it has recently completed the scale of this business to Siemens.

**Network management and operations--**Over the course of the last two years, IBM has entered the systems operations business in a big way in the U.S. In 1991 it announced the Information Systems Services Division, which focuses on outsourcing of systems and network operations.

**IBM Financial  
Information**

A five-year financial summary for IBM is provided in Exhibit E.

**Exhibit E****FIVE-YEAR FINANCIAL SUMMARY FYE 31-12 (\$ MILLIONS) ,**

YEAR	1987	1988	1989	1990	1991
Revenues	55,256	59,681	62,710	69,018	64,792
Annual Growth Rate (%)	6	8	5	10	-6
Profit before tax	8,630	9,033	6,645	10,203	121
Profit after tax	5,258	5,806	3,758	6,020	-564
Annual Growth Rate (%)	10	10	-35	60	-109

IBM attributes revenue decline in 1991 to the slower than expected product transition of its higher-margin, large computer business. The company did not see the returns it anticipated from investments in marketing resources, and continued to experience severe pricing pressures, especially in the storage systems, PCs, printers and display businesses. In the fourth quarter of 1991, the company took charges against earnings in excess of \$3 billion to reflect restructuring costs.

IBM's key financial ratios are shown in Exhibit F.

**Exhibit F****KEY FINANCIAL RATIOS**

YEAR	1987	1988	1989	1990	1991
Revenue per employee (\$000s)	142	154	164	185	188
Profit per employee (\$000s)	21	23	18	30	0.35
Return on sales (%)	15	15	11	16	1.5
Return on capital employed (%)	15	16	12	18	1.6

**IBM Market Analysis**

A geographical breakdown of IBM's revenues is provided in Exhibit G, while Exhibit's H and I provide breakdowns by product category.

**Exhibit G****REVENUE BREAKDOWN BY REGION**

YEAR	1991	1990	1989	1988
United States - revenues (\$M) - percent	24,621 38	27,132 39	25,745 41	25,320 42
Europe/Middle East/Africa - revenues (\$M) - percent	25,917 40	27,234 39	23,170 37	21,600 36
Asia Pacific - revenues (\$M) - percent	9,071 14	9,564 14	9,202 15	8,824 15
Americas - revenues (\$M) - percent	5,183 8	5,088 8	4,593 7	3,937 7
<b>TOTAL</b>	<b>64,792</b>	<b>69,018</b>	<b>62,710</b>	<b>59,681</b>

Source: IBM

**Exhibit H****REVENUE BREAKDOWN BY TYPE OF BUSINESS**

YEAR	1991	1990	1989	1988
Equipment sales - revenues (\$M) - percent	36,932 57	43,959 64	41,586 66	39,959 67
Support Services - revenues - percent	12,958 20	11,322 16	9,858 16	9,285 16
Software - revenues (\$M) - percent	10,367 16	9,952 14	8,424 13	7,927 13
Rentals & financing - revenues (\$M) - percent	4,535 7	3,785 6	2,842 5	2,510 4
<b>TOTAL</b>	<b>64,792</b>	<b>69,018</b>	<b>62,710</b>	<b>59,681</b>

Source: IBM

The portions of IBM's revenues that are less subject to year-to-year fluctuations--services, software, and rentals and financing continued to grow. They accounted for 43% of 1991 revenue up from 33% in 1990.

## Exhibit I

## REVENUE BREAKDOWN BY PRODUCT CLASS

YEAR	1991	1990	1989
Processors - revenues (\$M) - percent	14,954 23	16,433 24	16,236 27
Personal systems - revenues (\$M) - percent	8,505 13	9,644 14	8,409 13
Other workstations - revenues (\$M) - percent	3,216 5	4,076 6	3,876 6
Peripherals - revenues (\$M) - percent	10,478 16	13,190 19	11,458 18
Software - revenues (\$M) - percent	10,524 16	9,952 14	8,424 13
Maintenance services - revenues (\$M) - percent	7,414 12	7,198 10	6,971 11
Federal Systems - revenues (\$M) - percent	1,952 3	1,923 3	1,990 3
Other - revenues (\$M) - percent	7,749 12	6,602 10	5,526 9
<b>TOTAL</b>	<b>64,792</b>	<b>69,018</b>	<b>62,710</b>

Breakdowns of IBM's software and services revenues in Europe are provided by delivery mode in Exhibit J and by country in Exhibit K.

## Exhibit J

**BREAKDOWN BY DELIVERY MODE, 1991  
EUROPEAN INFORMATION SERVICES REVENUES**

DELIVERY MODE	REVENUES* (\$M)	PERCENT
Processing Services	165	2
Network Services	110	1
Software Products	3,975	42
Professional Services	1,160	12
Systems Integration	610	6
Turnkey Systems	240	3
Systems Operations	3	0
Equipment Services	3,210	34
<b>TOTAL</b>	<b>9,490</b>	<b>100</b>

\* INPUT estimates, totals may not equal 100 due to rounding.

## Exhibit K

**BREAKDOWN BY INDUSTRY SECTOR, 1991  
EUROPEAN SOFTWARE AND SERVICES REVENUES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	500	8
Process Manufacturing	225	4
Transportation	40	1
Utilities	125	2
Telecommunications	75	1
Retail Distribution	200	3
Wholesale Distribution	240	4
Banking and Finance	1,055	17
Insurance	350	6
Health care	75	1
Education	50	1
Local Government	70	1
National Government	75	1
Business Services	25	0
Other Sectors	3,175	50
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>6,280</b>	<b>100</b>

\* INPUT estimates

## Exhibit L

**BREAKDOWN BY COUNTRY, 1991  
EUROPEAN INFORMATION SERVICES REVENUES**

COUNTRY	REVENUES* (\$M)	PERCENT
France	1,674	18
Germany	2,125	22
U.K.	1,462	15
Italy	1,494	16
Netherlands	494	5
Belgium	244	3
Spain	414	4
Switzerland	222	2
Austria	200	2
Sweden	375	4
Denmark	286	3
Norway	186	2
Finland	138	1
Ireland	60	1
Portugal	47	0
Greece	35	0
Eastern Europe	50	1
<b>TOTAL</b>	<b>9,490</b>	<b>100</b>

\* INPUT estimates.

**Strategic  
Analysis****(a) Company Direction**

At the beginning of 1992, IBM set in motion comprehensive changes to redefine IBM from a single, centralised company to a network of more competitive businesses.

It aims to increase the independence of its manufacturing and development businesses and also its marketing and service companies. Each business will be more focused and responsive to its market. At the same time these businesses and companies will remain linked and able to draw upon the full range of IBM's technological and financial resources.

The marketing and services companies will focus more on market selection and consulting services and will offer products and services from IBM, combined with, as appropriate, those from other companies to provide integrated solutions tailored to customer needs.

The manufacturing and development units will optimise product manufacturing and development and, as their autonomy increases, sell their products to other manufacturers.

In 1992, IBM describes itself as on the offensive. The company will strive to improve operating efficiency as it implements the restructuring actions initiated in 1991. It aims to increase revenues, gain market share and improve cash flow and returns.

IBM sells its prospective clients the following benefits: avoiding hiring peaks and the need for advanced technology skills for large projects, gaining the latest, state-of-the-art technology, increased profitability of project success, return on investment, and predetermined cost and schedule.

Through its worldwide application solution organisation, IBM is trying to provide solutions for all vertical industries as well as cross-industry applications. Its strategy is to team with software developers and integrators that have known capability in the different vertical markets while building its own application knowledge and software portfolio. IBM's equity investment in key software developers also supports this objective.

IBM is also expanding the career paths for its services specialists by adding five categories of professions, client executive, consultant, architect, project manager and opportunity manager.

This aims at improving and motivating employee commitment and, ultimately, customer satisfaction.

*i) Consulting*

Business Consulting--IBM's consulting capability is strongest in technology areas and weaker in vertical industry applications. The company is making a conscious effort to strengthen the latter by hiring professionals with experience who add business consulting capability in vertical industry markets. IBM recently hired an experienced business consulting professional, Robert M. Howe from Booz, Allen & Hamilton, as general manager, Consulting Practices and Operations. One disadvantage IBM has as a consultant is its perceived lack of solution objectivity, and this perception is most likely true.

IBM's current services strategy is formed around three types of offerings: business consulting, application and systems development, and operational management. There are now more than 100 IBM application and system centres worldwide, as well as a worldwide services council for ensuring consistency and quality in IBM's key services offerings.

In 1991, the Integrated Systems Solutions Corporation (ISSC) was set up as a wholly owned subsidiary in the United States. The ISSC aims to establish IBM market leadership as a world-class supplier of systems management services to both existing and potential customers.

*ii) Geographic Coverage*

IBM's geographic coverage is arguably the strongest in the industry with good coverage of all the major national markets.

*iii) Partnerships*

IBM has hundreds of alliances with marketing assistance partners (MAPs), system integrators, and other partners, examples of which are discussed above under the sub-section Collaboration Initiatives.

**(b) Strengths and Weaknesses***(i) Strengths*

IBM possesses impressive strengths that cannot be overlooked:

The company has excellent technical skills, the broadest geographic coverage of any vendor, a strong federal systems integration background and a full range of alliances with excellent team mates and subcontractors.

Over the last two years IBM has made significant strides to improve its vertical industry capabilities. Through a worldwide applications solution focus, it is developing templates for vertical industry application

requirements. These templates will ultimately become input to IBM's AD/Cycle products and permit IBM to tailor customer-unique solutions very competitively.

- IBM has an immense customer base. On a worldwide basis, it includes the largest companies in every industry sector.
- IBM has a strong base of internal systems integration skills.
- IBM's ability to invest in applications solutions is tremendous. The ability to invest in developing replicable solutions may prove critical in the SI market. IBM has established the organisation and resources to accomplish this.
- With its broad and widely accepted product lines, large customer base, and immense investments in technology, IBM has the ability to attract a broad range of third parties that are willing to be partners, team mates, and subcontractors. IBM has literally hundreds of these alliances in place today.

(ii) *Weaknesses*

IBM has several areas of weaknesses, although it is aware of most of its limitations and is taking action to correct them.

- IBM's broad product line, in many areas, suffers from incompatibility and lack of connectivity. This is one of the major reasons that IBM originally established an systems integration capability and is implementing SAA. Solving this problem will result in a stronger product line but, at the same time, eliminate some of the need for systems integration.
- IBM has traditionally had a very distinct preoccupation with hardware products. While it has become more market-driven and is addressing its clients' needs through its Applications Solutions line of business, it has yet to prove that it can successfully bring together SAA, AD/Cycle, and its vertical industry architectural templates.
- The marketing organisation must learn and accept a new direction and set of skills. Its traditional orientation emphasises the sale of products, not solutions. The sales organisation is used to immediate results based on product shipments, not long-term returns based on lengthy programme development and implementation cycles. IBM has revised its sales incentives to place equal emphasis on services and products, yet it remains to be seen if the sales organisation will respond to this change in emphasis.

- It is clear that customers are looking for industry knowledge and application expertise. IBM, because of its broad customer base, is attempting to develop expertise in all industries. There is still a question whether IBM, regardless of its size and resources, can attract the talent required to achieve this ambitious goal in the near term.

### **(c) Conclusions**

IBM has clearly recognised the need to be market-driven and to develop and market solutions rather than products. This major transition will continue as long as IBM sees this as the only option in maintaining its market position. While some aspects of this strategy may change, the thrust is expected to continue.

INPUT also believes that IBM will continue to focus on developing replicable solutions to leverage its development investment and reduce the skill requirements and risks associated with one-of-a-kind SI engagements. INPUT also believes that IBM will continue to focus more on internal training and tools to improve the productivity of its personnel. It will also depend on its AD/Cycle applications development and maintenance strategy to make it much more competitive in the professional services and systems integration arena.

### **Strategic Assessment**

IBM, as the world's largest computer company, has suffered recently the most severe setbacks to its growth ambitions of all the major systems vendors. Ever since the middle of the 1980s (at its employment peak) it has been attempting to adjust and adapt its vast organisation structure to rapidly changing market conditions. It just has not been able to move fast enough to succeed in staying ahead of the trends.

Restructuring, a proliferation of alliances, joint ventures and share ownership of software and services vendors have all been employed in an attempt to extend its sphere of influence and to shore up its core, product-based revenue streams.

IBM's past strategy, enabled by its size and ability, was to establish and maintain account control and set standards, causing customers to remain close to the IBM product line. But IBM has not always had the right product at the right time, and often the products provided weren't designed or the software wasn't available to make them work well together. Customers were often frustrated and angered by this approach, and competitors made serious inroads into IBM's customer base. The adoption of a systems integration capability, including a willingness to integrate non-IBM sourced equipment has undoubtedly had significant success.

The closeness of the SI vendor to the customer also ensures that IBM's AS organisation has a source of market intelligence on emerging requirements. The residual application and industry experience give IBM a strong sense of what the customer wants and needs. The company expects to turn this experience into the vertical and cross-industry products that it can replicate across a broad range of customers. Some products will be off-the-shelf and others will require tailoring and offer the opportunity for SI or professional services implementation revenues as well. This strategy could also result in IBM becoming a much larger player in the turnkey market, where it enjoys limited participation today.



## COMPANY PROFILE

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### LOGICA PLC

68 Newman Street  
London W1A 4SE  
United Kingdom  
Tel: 44 71 637 9111  
Fax: 44 71 637 8229

Chairman: Philip Hughes  
Managing Director: David Mann  
Status: Public  
Number of Employees: 3,592  
Revenue (FYE 31-12-91): £ 197.8 million

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### The Company

Logica is one of the last surviving, UK-owned, major independent professional services vendors and has a long history of custom software development. Despite attempts to enter the U.S. market, the company lacks a significant market presence in the major European countries apart from the UK and is in danger of falling behind in the race to build pan-European, if not global capability.

While the company has a strong presence in the banking and finance sector, the company's main strengths lie in its technical capabilities in support of telecommunications and the defence and space industries.

### Organisation Structure

As shown in Exhibit A, in the UK Logica is organised into four operating divisions serving vertical markets and its research organisation, Logica Cambridge Ltd.

#### Exhibit A

#### LOGICA: PRINCIPAL UK SUBSIDIARIES

Logica Defence & Civil Government Ltd	-	- Logica Cambridge Ltd
Logica Space & Communications Ltd	-	- Logica Finance Ltd
Logica Industry Ltd	-	

A detailed organisation chart for Europe and the U.S. is not available.

Logica, like the other professional services vendors, does not have a division dedicated to systems integration. Large projects are handled within the relevant industry-specific division which contains all the necessary sales, project management, and implementation personnel.

### Acquisitions

Logica acquired Data Architects, a U.S. company, in 1988 at a cost of £25.7 million. The activities were merged with those of Logica Systems Inc. and the company was renamed Logica Data Architects Inc.

Logica holds 40% of the ordinary shares of Logica General Systems SpA. In October 1990, Logica General Systems SpA acquired a controlling interest (65%) in GSO Informatica SpA, a company specialising in the manufacturing industry and health care sectors. A quarter of Logica's revenues from the manufacturing sector are now accrued in Italy.

In September 1990, Logica and British Airways established a joint venture, Speedwing Logica Limited which is owned 51% by British Airways and 49% by Logica.

### Recent Major Projects

Instituto Bancario San Paolo di Torino - development of a custom interface to the Swift II network, together with front-end message switching systems.

Norwich Union - network integration of mainframe-based administration systems.

ESA- involvement in Polar Platform programme.  
- software for spacecraft control and simulation.

Finland Telecom - supply of intelligent network services

Hutchinson Hong Kong- customer billing and administration system

Sony (UK)- repair workshop scheduling system

HM Customs & Excise - laptop system for VAT field inspectors

UK Ministry of Defence - system for interpreting reconnaissance pictures from military aircraft

Civil Aviation Authority - development of graphical user interface for flight processing system

Ford- database of all activities covered by vehicle sales and scheduling

Anglian Water     - automation of water treatment works  
                      - implementation of digital mapping system

Yorkshire Water - Regional Telemetry Scheme  
                      - Water distribution modelling system  
                      - Regional Operations Database.

## **Products and Services**

### **(i) Technologies**

During the year, Logica invested £5 million in R&D, a reduction from the £8.4 million spent the previous year.

Logica's investment in research and development supports two main areas: firstly, the development of skills and expertise in new technologies which the company regards as important for the future of the business, and secondly the development of products and kernels, which form a basis for much of the company's systems implementation business, particularly in finance, telecommunications and energy and utilities.

A high proportion of the work on new technologies comes from its Cambridge-based research facility, established five years ago. Specialist teams develop new tools, techniques and skills in four key technologies - advanced software engineering (ASE), human computer interaction (HCI), knowledge based systems (KBS), and speech and language. Logica's research activities centre on collaboration with partners through a number of leading UK and European wide research initiatives, and include a growing number of projects with associates from British industry and academia.

Logica views Software engineering as a key growth area and is involved in research into formal specification methods, transformational techniques, object oriented and logic programming, and integrated project support environments. Formal methods are important in safety critical systems, found in situations where undetected errors or failures would cause a risk of life, breach of security or mission failure.

In the area of knowledge-based systems, Logica has worked on a number of collaborative research projects across industry.

Logica is also involved in LINNET, the neural network technology transfer club run jointly by Logica, SD-Scicon and the University of London and funded by the Department of Trade and Industry, which introduces members to neural network technology in the context of their own business areas. The club, which was formed in 1990, totals 16 member companies, amongst them British Gas plc, British Nuclear Fuels Limited, London Underground Limited and the Post Office. On behalf of the club Logica is working with London Underground in a study to determine the potential of using neural networks to analyse video images of passengers concentrations on platforms, with the benefit of improved scheduling of trains and better safety and security. Other research work undertaken by the group includes the optimisation of mail shots, control of distillation column and trend forecasting.

In the area of speech and language technology, Logica is involved in longer term research projects such as SUNDIAL (Speech Understanding and DIALogue) in which the company is leading a consortium of 12 partners across Europe to develop computer systems that can be accessed by speech over the telephone. In Australia, the company forms part of the GLASS (Generalised Language and Speech System) consortium which runs in parallel.

However, by far the largest proportion of Logica's R&D investment is in product development. Such development takes place in the context of client projects, jointly with partners, and as a discrete activity within Logica.

#### (ii) Key Application Products

Logica recognises the role of software products and kernels in supporting its systems integration activity and the company's software product portfolio includes:

- ON/2, a financial transaction processing system
- BESS, a modular global funds transfer system
- FASTWIRE, communications product
- an X.400 product being developed in conjunction with Tandem
- Logica Transaction Director for interconnection of applications across differing hardware platforms
- Storenet/2, an EPOS networking product
- MASTER CONTROL 2000 for operational pipeline management

- ENDS, for electrical utilities
- TRACE, a personnel movements tracking product used by oil companies
- CARDS, for Manpower planning and colliery management
- GALLERY 2000, a stills library management system
- PLAYOUT 8000, for the automation of station output on behalf of broadcasters.

### (iii) Industry Knowledge

Logica is especially strong within the following sectors:

- Banking and Finance
- Space
- Telecommunications
- Energy and Utilities
- Defence.

### Banking & Finance

The banking and finance sector is the largest and most international of Logica's defined market sectors. Logica recognises the growing importance of product and kernel based solutions to optimise cost-effectiveness and delivery times for projects in the sector and the company's product range now includes offerings for information distribution, financial message switching and communications, payments platforms, treasury, dealing and transaction processing applications.

Examples of work carried out by Logica in the banking and finance sector include:

- The development of a custom interface to the SWIFT II Network for the Istituto Bancario San Paolo di Torino.
- The development of a common front end to provide access to each of Norwich Union's mainframe-based financial services products.

## Space

Logica is one of the leading suppliers of software and services to the space industry, providing software and systems in the areas of ground control operations, onboard systems and satellite-based control systems. The company's clients include many of Europe's space agencies and their main contractors.

Examples of projects carried out by Logica on behalf of the European Space Agency include:

- Support for BAe in the development of the Polar Platform spacecraft.
- Design and development of software for spacecraft control and simulation, in particular for the Infra-red Space Observatory.

## Telecommunications

Logica is well-established in the telecommunications sector and its activities involved intelligent network infrastructure and applications, network management, messaging services, mobile radio networks, and communications satellites. Logica's client list includes a number of PTTs and also satellite organisations where Logica's knowledge of both telecommunications and the space sector is a significant strength. The company also believes that its range of products and kernels are a major strength, enabling its clients to deploy new services rapidly and with minimum risk in a highly competitive environment.

Examples of projects in which Logica has been involved include:

- The provision of intelligent network services to Finland Telecom.
- The development of a customer billing and administration system for Hutchinson Hong Kong.
- The development of the Dutch PTT Telecom's SAGITTA network and Tradeserver system.
- The implementation of the Hong Kong Telecom International tariffs and traffic accounting system.
- The design and development of a customer administration, billing and sales ledger system for Ferranti Creditphone.

Logica has an international co-operative marketing agreement with Tandem Telecommunications Systems Inc. covering the latter's intelligent network application software products.

## Energy & Utilities

Logica has considerable experience in implementing monitoring and control systems for the oil and gas and water industries.

Examples of projects carried out by Logica include:

- A digital mapping system for Anglian Water.
- Water pressure and flow monitoring systems for Anglian Water.
- The Regional Telemetry Scheme for Yorkshire Water.
- The Regional Operations Database for Yorkshire Water.
- Enhancement of a system providing meteorological and oceanographical information for Shell Exploration and Production.
- Regional gas control systems for British Gas.
- National gas pipeline management system for Nederlandse Gasunie.

Logica's Master Control systems kernel is the foundation for much of the company's work in pipeline operations management for both the oil and gas and water industries.

Logica has a co-operative business agreement with Yorkshire Water to promote joint IS skills to the water industry worldwide.

## Defence

Logica views its work in advanced technology, in areas such as signal processing, and computer security and communications as key to its success in the defence sector.

Examples of projects in which Logica has been involved include:

- Development of a system for interpreting reconnaissance pictures from military aircraft on behalf of the UK Ministry of Defence.
- A system to automate the detection of engine and gear box failure in the helicopters of the Fleet Air Arm.
- The development and installation of an operational connectivity management system for the shore end of the Royal Navy's ship-shore-ship communications network.

**Financial  
Information**

The five year financial summary for Logica is shown in Exhibit B.

**Exhibit B****FIVE-YEAR FINANCIAL SUMMARY (FYE 30-6) ( £ MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	111.6	135.6	173.5	190.8	197.8
Annual Growth Rate (%)	-	22	28	10	3.7
Profit before Taxes	11.2	14.7	18.3	8.8	3.7
Annual Growth Rate (%)	-	31	24	(52)	(58)

Exhibit C provides the key financial ratios for Logica.

**Exhibit C****KEY FINANCIAL RATIOS**

	1988	1989	1990	1991
Revenues per employee (£'000s)	42.0	51.2	53.3	54.2
Profit per employee (£'000s)	4.3	5.0	2.6	2.3
Return on sales (%)	10.1	10.1	4.9	4.2
Return on capital employed (%)	31.1	32.1	16.7	16.7

**Market  
Information**

Exhibit D identifies Logica's revenues by region while Exhibit E provides INPUT's estimates of Logica's software and services revenues within Western Europe.

The performance of the company varied significantly by region in 1991 with revenues in Continental Europe increasing by 19.3% and those in the UK by 10.9%. However the company's US revenues fell by 28.9% resulting in a £2.7 million loss.

As a result of the difficult trading conditions, Logica undertook a number of redundancy and restructuring programmes during the year, mainly in the US and the UK.

In the US, two of the company's strongest market areas - the finance sector and equipment vendors - were both depressed in 1991 contributing to the poor performance within the subsidiary.

## Exhibit D

**1991 MARKET ANALYSIS BY REGION (£ MILLIONS)**

REGION	REVENUES	PERCENT
United Kingdom	101	51
Rest of Europe	55	28
North America	22	11
Asia Pacific	20	10
<b>TOTAL</b>	<b>198</b>	<b>100</b>

## Exhibit E

**SOFTWARE & SERVICES REVENUES 1991 BY COUNTRY (£ MILLIONS)  
WESTERN EUROPE, INPUT ESTIMATE**

COUNTRY	REVENUES	PERCENT
United Kingdom	93	65
Netherlands	16	11
Italy	13	9
Germany	10	7
Belgium	4	3
Scandinavia	7	5
<b>TOTAL</b>	<b>143</b>	<b>100</b>

Exhibit F identifies the breakdown of Logica's overall revenues by market sector.

The bulk of the company's revenues are derived from the Finance, Energy and Utilities, and Government and Defence sectors, though the company has well-established niche markets in the telecommunications and space sectors and is targeting the air travel sector via its joint venture with British Airways.

## Exhibit F

## 1991 MARKET ANALYSIS BY SECTOR (£ MILLION)

Sector	revenues	percent
Finance	55	28
Energy & Utilities	28	14
Government	26	13
Defence	20	10
Computing & Electronics	20	10
Telecommunications	18	9
Other manufacturing	14	7
Space	10	5
Transport	7	4
<b>TOTAL</b>	<b>198</b>	<b>100</b>

Exhibit G provides a breakdown of Logica's revenues by activity and Exhibit H provides INPUT's estimates by delivery mode.

While Logica recognises the importance of software products and kernels, the bulk of the company's revenues continue to be derived from its professional services and systems integration activities.

## Exhibit G

## 1991 MARKET ANALYSIS BY ACTIVITY (£ MILLIONS)

ACTIVITY	REVENUES	PERCENT
Custom systems		
- software	120	61
- hardware	16	8
Software products/ Kernels	20	10
Consultancy	42	21
<b>TOTAL</b>	<b>198</b>	<b>100</b>

## Exhibit H

**1991 SOFTWARE & SERVICES REVENUES BY DELIVERY MODE  
(£ MILLIONS) WESTERN EUROPE, INPUT ESTIMATE**

DELIVERY MODE	REVENUES	PERCENT
Software Products	20	14
Professional Services	57	40
Systems Integration	46	32
Turnkey Systems	20	14
<b>TOTAL</b>	<b>143</b>	<b>100</b>

**Strategic  
Analysis (SI)**
**(a) Company Direction**

In some ways it is difficult to identify a group strategy for Logica. Certainly there are no signs of the company seeking to expand its limited geographic coverage, and it has been suggested that in recent years the company has itself been available for acquisition rather than seeking acquisition targets of its own.

The company has endeavoured to develop a substantial business in the U.S. based around the finance and telecommunications sectors together with its work for equipment manufacturers. However this business has received recent setbacks and a substantial fall in its revenues in 1991 led to redundancies and the consolidation of activities.

Logica recognises the importance of partnerships in support of its systems integration activities, and is seeking to establish relationships with both clients and other vendors. Recent examples include the formation of Speedwing, a joint venture with British Airways, and a co-operative business agreement with Yorkshire Water. The company has also established a strong relationship with Tandem involving a co-operative marketing agreement covering the latter's intelligent networking application software products and the joint development of an X.400 product.

Logica is keen to develop its partnerships with the equipment vendors. The company has assisted IBM in developing a number of software products and views this activity as a key means of gaining early product information providing the opportunity to use the products in systems integration projects or to assist in early implementations.

The company will continue to develop its own kernels and to form partnerships with vendors of key software products since it recognises the increasing requirement for such products within systems integration projects.

With its considerable telecommunications expertise, and own gateway product, Logica may also expand its network integration activities.

However Logica remains a specialist in technical computing and will continue its research into leading edge technologies such as neural networks, speech and language technology, and signal processing.

#### (i) Consulting

Logica Consultancy Limited was closed down in 1990 and the relevant experience transferred to the operating units. While Logica estimates that a quarter of its revenues are derived from consultancy, this is essentially technical consultancy ranging from the development of IS strategies to advice in areas such as telecommunications.

Some examples of consultancy projects carried out by Logica include participation in:

- the development of the requirements and options for the Polar Platform ground segment
- the development of the standards of the Intentional Consultative Committee on Space Data Systems
- the evaluation and certification of secure IS products via Logica's Commercial Licensed Evaluation Facility.

While Logica undoubtedly possesses a significant body of industry expertise within its various industry groups, it lacks the commercial management consultancy expertise which is being assembled by some of its major competitors in the systems integration market.

#### (ii) Geographic Coverage

Logica's geographic coverage is poor in comparison with the company's major rivals who are endeavouring to establish a major presence in each of the principal European countries.

While the company has some presence in Italy, it particularly lacks a significant presence in Germany and France.

Outside the four major countries, Logica is best established in Benelux with some presence in Scandinavia.

### (iii) Partnerships

Logica recognises that few vendors will be capable of supplying all the skills and products required for large systems integration projects, and is in the process of establishing a complementary set of partnerships and alliances with both its clients and other vendors.

Examples of existing partnerships are:

- Logica General Systems' joint venture with Dun & Bradstreet to distribute the latter's application software products in Italy.
- Collaboration with BAe in space projects such as the Polar Platform.
- Logica's work with equipment manufacturers such as IBM, Tandem, and Hitachi in developing software products.
- Marketing rights for the Teknekron Trading System, an integrated dealing room system.
- A co-operative business agreement with Yorkshire Water.
- The approved industrial systems integrator relationship with IBM UK, where Logica is believed to have been involved in the initial implementation of the POMS product in the process manufacturing sector.
- Joint development of an X.400 software product with Tandem.
- Joint development with IBM on its DataTrade product in support of financial dealing rooms.
- Speedwing, a joint venture with British Airways.

### (ii) Strengths and Weaknesses

Logica has a long history of implementing large professional services projects and has considerable expertise in software development methodologies and project management.

The company also has considerable technical computing expertise from which it has built positions of strengths in the space, telecommunications, energy, and utilities sectors. In the commercial sphere, though influenced considerably by the company's telecommunications expertise and product portfolio, Logica has built up a strong position in the finance sector. It is possible that the company will increasingly apply its network integration skills across a broader range of industry sectors.

Logica has also established close relationships in support of the software product development activities of a number of equipment vendors including IBM and Tandem. This has the potential to increase Logica's involvement in systems integration projects involving these products.

While Logica has a high level of skill in areas such as telecommunications, telemetry, and other technical aspects of IS, the company lacks the presence in commercial IS shown by many of its major competitors, and lacks a strong commercial management consultancy capability.

While the company has a strong relationship with Ford Motor Company and is an approved industrial systems integrator on behalf of IBM, Logica is not especially strong in the general manufacturing and commerce sectors.

The company also lacks a significant presence in France and Germany.

### **(c) Conclusions**

Logica is currently one of the second tier systems integration vendors behind CGS, Andersen Consulting and IBM. It has achieved this position largely by virtue of its activities in the UK. Logica lacks the geographic coverage to become a major player in serving the market for pan-European commercial systems integration projects.

Logica has tried to develop a major presence in the U.S. but so far appears to have failed in this endeavour, and lacks the financial resources to make a major acquisition there.

The company's most promising systems integration endeavours appear to be in the space and defence sectors, where the company has considerable expertise, and in technical projects in the energy and utility sectors. However Logica can be expected to have difficulty in establishing itself even in these sectors outside the U.K.

Logica has some capability in network integration in the banking and finance sector, but is comparatively weak in the general manufacturing and commercial sectors where the company seems content to play a supporting professional services role to equipment manufacturers such as IBM.

Overall the company currently appears to lack the ambition to make a major impact in the systems integration market, and may well be the subject of a takeover bid within the next few years.

**(d) Strategic Assessment - Logica**

Logica developed a strong reputation for its project capabilities and specifically selected areas of expertise, most notably in telecommunications. Its reputation has however largely been limited to the U.K. market, its foreign projects being based on an export rather than an implantation mentality.

Logica has also eschewed taking an aggressive stance in respect of seeking total responsibility for projects, preferring to work to defined IT requirements rather than having a broader view of a client's total business needs. The retirement of its charismatic founder Philip Hughes seems to have intensified the executive viewpoint around a cautious, inward looking philosophy concerned with IT issues and development.

Consequently LOGICA cannot be expected to figure strongly in the future systems integration market except as a significant subcontractor or in the lower value sector. LOGICA remains a tempting takeover target, particularly should short-term profitability lower the price at which it might be acquired.



**LOTUS DEVELOPMENT CORPORATION  
(CORPORATE HEADQUARTERS)**

55 Cambridge Parkway  
Cambridge, MA 02142  
USA  
Tel: (617) 577-8500  
Fax: (617) 225-0890

President: Jim Manzi  
Number of Employees: 3,100 (U.S.), 1,100 (International)  
Revenue (FYE 31-12-91): \$829 million worldwide, \$264 million (approx.) Europe  
Status: Public

**(INTERNATIONAL HEADQUARTERS)**

The Causeway  
Staines  
Middlesex TW18 3AG  
Tel: 44 784 455445  
Fax: 44 784 469342

**The Company**

Lotus Development Corporation is a public company and is listed on Nasdaq.

Lotus was founded in 1982 to develop applications for the emerging personal computer market. The company began its history with eight employees and \$1 million in financing and introduced its first product, a spreadsheet called Lotus 1-2-3, in 1983. Lotus 1-2-3 sold more than 200,000 units during its first year on the market. The company ended its first full fiscal year with \$53 million in revenue and 300 employees.

In its second year, the company introduced Symphony, an integrated software package which, like 1-2-3, remains the top-selling product in its category worldwide. During the 1980s, Lotus built its success by delivering innovative productivity tools to individuals discovering the benefits of personal computing. With the introduction of Lotus Notes in 1990, the company demonstrated its ability to deliver applications in an open workgroup environment and signalled its commitment to addressing what Lotus views as the primary imperatives for computing in the 1990s--networking and organisational computing.

In 1991 Lotus reported revenues of \$829 million, an increase of 20%, and net profits of over \$4.3 million, an increase of 86% on 1990 figures.

The company markets its products in more than 80 countries and maintains 46 offices outside the U.S. The company also markets Lotus 1-2-3 in 25 native language versions, including Arabic, Chinese, Hungarian, Slovenian and Czech.

In December 1991, the company began a series of restructuring actions to improve its cost structure, including a 10% reduction of full-time employees.

### Organisational Structure

The company's headquarters are in Cambridge, Massachusetts, in the U.S. Lotus categorises all operations outside the U.S. as international. Its international headquarters are at Staines in the U.K. and serves all subsidiaries outside the U.S., including Europe. Lotus has subsidiary companies in fifteen European countries including Russia, and is represented by authorised dealers in nine others.

The company's international manufacturing operations are located in Ireland and Singapore.

### Exhibit A

#### OTHER KEY EXECUTIVES

Senior Vice Presidents	Area of Responsibility
Edwin Gillis	Finance and Administration
John Landry	Software Development
June Rokoff	Consulting and Information Services Group
David Roux	Portable Computing Group
Robert Weiler	North American Business Group
Robert P Schechter	International Business Group
Ke Branscomb	Business Development
Frank Ingari	Marketing

## Acquisition History

Companies, products and technologies acquired by Lotus since its establishment include:

- 1985- Partial assets of Software Arts, creators of Visicalc, acquired.
- 1985- Acquisition of Dataspeed, Inc., which led to the development of Signal, a real-time market data system delivering stock market quotations.
- 1986- Acquisition of ISYS Corp, which led to the development of Lotus One Source, a family of business and financial information products delivered on CD ROM.
- 1986- Acquisition of Graphics Communications, Inc., which became Lotus' Graphic Products Group, responsible for Freelance and Graphwriter.
- 1986- Assets acquired from InfoCenter, which led to the development of The Applications Connection (T-A-C), software that provides connections between mainframes and PC applications.
- 1986- Partial assets of Future Software acquired.
- 1987- Acquisition of Datext, Inc., marketers of financial databases on CD ROM.
- 1989- Acquisition of Allways, a spreadsheet publisher, from Funk Software, Inc., to provide spreadsheet publishing capabilities to 1-2-3.
- 1989- Acquisition of Aleph 2, developer of Impress. Impress technology replaced Allways as Lotus' standard spreadsheet publishing technology.
- 1990- Acquisition of Alpha Software's AlphaWorks. Renamed LotusWorks, it became Lotus' entry-level integrated software offering.
- 1990- Acquisition of Samna Corp., developers of Ami Professional.
- 1991- Acquisition of cc:Mail, a privately owned company which developed and marketed cc:Mail, a leading LAN-based electronic mail product, for approximately \$32 million and additional payments depending on future performance.

## **Dispositions**

In January 1991, Lotus sold the assets and related operations of Lotus Publishing Corporation, publisher of Lotus Magazine, for \$2.4 million.

## **Key Products and Services**

### **Communications and Applications Platforms**

#### **Electronic Mail**

cc:Mail, Lotus' electronic-mail product, is the leading electronic-mail product with more than 2 million seats installed and approximately 35% market share. Nearly 40% of the Fortune 500 companies use cc:Mail to support their daily operations. cc:Mail runs on DOS, Windows, Macintosh, OS/2 and UNIX as well as all major LANs, providing transparent connectivity to all other major private and public electronic mail systems, and connecting to facsimile machines worldwide. cc:Mail runs on the leading network operating systems, including Novell NetWare, Microsoft LAN Manager, Appletalk, OS/2LAN Server, and Banyan Vines. The product also offers gateways to Novell MHS, IBM PROFS, SMPT/UNIX, 3COM, MCI, AT&T and Sprint.

#### **Lotus Notes**

Lotus led the industry in defining groupware when it introduced Lotus Notes in 1990. Lotus Notes is the company's group collaboration software product for networked personal computers. Notes delivers a platform for developing workgroup-based applications and allows large groups of users to communicate shared information across geographic and organizational boundaries. Business information of all types can be shared, including text, numerical data, graphics and photographs. Notes is now being used for applications such as customer tracking, status reporting, project management, information distribution, electronic mail, and collaborative free-form discussions of all kinds.

## **Application Products**

### *Spreadsheets*

Lotus 1-2-3 is the world's most popular spreadsheet with more than 20 million users worldwide. Lotus currently ships and supports versions of 1-2-3 for the DOS, Windows, UNIX, OS/2 and Macintosh operating systems. The company also markets Lotus Improv. Improv is the first dynamic spreadsheet for instantly viewing and analyzing data in new and different ways. It is a revolutionary approach to solving business problems, available currently on the NeXT platform, and available for Windows in the first quarter of 1993.

### *Graphics*

Freelance Graphics is an award-winning presentation graphics package designed for the creation of professional-looking presentations. Lotus currently markets DOS, Windows and OS/2 versions of Freelance Graphics.

### *Word Processing*

Lotus Ami Pro 3.0 is a word processor for the Windows environment. The product's earliest version, Ami Pro 1.0, which first shipped in October 1989, was the first advanced Windows word processor to market. Ami Pro offers word processing features such as Fast Format, SmartMerge and Clean Screen.

Lotus Write is an entry-level Windows word processor designed for portable or in-office PCs.

SmartText, a hypertext tool for the Windows environment, is designed for building, reading, navigating and searching hypertext-linked on-line documents.

### *Other Products*

Symphony is Lotus' leading integrated software package, comprising spreadsheet, word processing, graphics, database and communications functions.

Lotus Realtime manages multiple real-time data feed server programs to facilitate complex mathematical analysis and advanced trading strategies using 1-2-3.

Lotus Organizer is Lotus' Windows-based personal information management product.

Agenda is Lotus' DOS-based personal information management product.

SmartPics for Windows is a clip-art library with more than 2,000 pieces of quality artwork. SmartPics is designed for adding visuals to Windows documents and presentation materials.

Magellan is a disk management utility for personal computers.

Multimedia SmartHelp for 1-2-3 for Windows on CD ROM is a multimedia product that combines text, sound and animation for 1-2-3 for Windows. The product is also available on a networked version with CD/Networker.

CD/Networker is a network-based solution for multiple users to access and share CD-ROMs on a LAN.

One Source is Lotus' family of information products delivered on CD ROM.

Lotus' Add-In Toolkits provide a broad set of programming tools that allow developers, value-added resellers and independent software vendors to create integrated applications with Lotus products.

DataLens technology provides transparent multi-vendor data access across hardware and operating system platforms, enabling Lotus users to integrate the data into their spreadsheets for analysis, manipulation and storage.

### **Consulting Services**

Lotus' Consulting Services Group offers a range of technical and business consulting services. The group works with customers to develop, implement, maintain and extend applications-based solutions.

### **Customer Support**

Lotus offers product support via telephone and other electronic means, as well as TDD support for the hearing impaired. The company offers 24-hour, 7-day support in the U.S. for PC versions of Lotus 1-2-3.

Financial  
Information

## Exhibit B

LOTUS DEVELOPMENT CORPORATION (CONSOLIDATED ACCOUNTS)  
FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (\$ MILLIONS)

	1987	1988	1989	1990	1991
Revenue	395.6	468.5	556.0	692.2	828.9
Annual Growth Rate (%)	-	18	19	24	20
Profit before tax	-	-	84.9	52.8	67.7
Annual Growth Rate (%)	-	-	-	-38	28
Profit after tax	72.0	58.9	67.9	23.2	43.1
Annual Growth Rate (%)	-	-18	15	-66	86
EPS	1.58	1.29	1.61	0.54	0.98

non U.S.  
423.2  
264  
159  
Asia/  
Pacific

Note: In December 1991, the company announced a series of cost-saving initiatives, including a reduction of full-time employees, tighter controls over discretionary expenses, and efforts to reduce facilities costs. The program resulted in a charge of \$23 million on a pre-tax basis and \$18.6 million, or \$0.42 per share, on an after-tax basis. The charge primarily consists of costs associated with employee severance and outplacement, and related facilities consolidation and equipment writedowns.

International revenues grew 26%, increasing non-U.S. revenues to 51% of the company's total revenues from 48% in the previous year. Substantial revenue gains were achieved in Japan, the United Kingdom and Germany. International results also benefited slightly from a weaker U.S. dollar.

**Market  
Analysis**

INPUT estimates Lotus' European Software and Services revenues accounted for \$264 million in 1991.

**Exhibit C**

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLION)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete manufacturing	53	20
Process Manufacturing	21	8
Transportation	8	3
Utilities	8	3
Telecommunications	8	3
Retail Distribution	13	5
Wholesale Distribution	8	3
Banking and Finance	53	20
Insurance	24	9
Health care	13	5
Education	6	2
Local Government	18	7
National Government	18	7
Business Services	13	5
Total Software and Services	264	100

\*INPUT estimates

**Exhibit D**

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUES	PERCENT
Application Software Products	259	98
Network Services	5	2
Total Software and Services	264	100

\*INPUT estimates

## Exhibit E

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	61	23
Germany	55	21
U.K.	34	13
Italy	34	13
Netherlands	16	6
Belgium/Lux.	8	3
Spain	11	4
Switzerland	13	5
Austria	6	2
Sweden	8	3
Denmark	5	2
Norway	3	1
Finland	5	2
Ireland	3	1
Other Europe	3	1
TOTAL	264	100

\*INPUT estimates

**Company  
Strategies****Company Direction**

Lotus sees its future in LAN-based communications, which has become the central focus of the company's business strategy. This strategy comprises three strands of development.

- Firstly, Lotus plans to take the lead in communications and workgroup computing. Its two core products in this area are cc:Mail and Notes. The company also plans to build on the natural "fit" between these two products. The mail application in Notes, for example, will evolve to incorporate the best features of cc:Mail, such as Smart addressing with a user interface, optimised for integration with Notes applications. At the same time, cc:Mail will evolve to incorporate Notes features such as forms and rich text.
- The second part of its strategy lies in bringing a solid communications underpinning to Lotus' core desktop applications--spreadsheet, word processing and graphics applications. It has already extended functionality and utility by mail-enabling its Window applications. The next release of 1-2-3 for Windows will have the new group-enabling capabilities known as Chronicle. Using Chronicle, groups of spreadsheet users can view each others assumptions, enter them, and construct alternative scenarios based on varying assumptions.
- The third strand in its strategy is mobile computing, which Lotus views as an extension of its cross-platform strategy. Lotus co-developed with Hewlett-Packard the first full-function palmtop computer, the HP95LX, and will continue to aggressively pursue portable solutions for its customers. The company will leverage its communications product strengths in portable software development. Lotus believes that communications capabilities will be a defining element of all types of portable technology.

Lotus has declared five priorities in 1992:

- Improve 1-2-3 for Windows
- Broaden its position in desktop integration and Suite sales
- Get its communications business to scale and dominate that arena
- Commit fully to cost management at all levels of the organisation
- Be more aggressive in promoting its technological developments

Through its subsidiaries and distributor network, Lotus has a wide European coverage. This is enhanced by the introduction of its Strategic Systems Consultants and Systems Integrators programme. Consultants

include management consultancies such as KPMG Peat Marwick, Price Waterhouse, Coopers & Lybrand and Deloitte Touche. Systems integrators include EDS, Philips and Systemhouse. The Lotus partners offer full consultancy services on its products.

### **Strengths and Weaknesses**

Lotus' main strengths can be summarised as follows:

- Leader in desktop applications
- 1-2-3 as an industry standard product
- Wide, diverse client base
- Strong financial performance

Lotus is recognised as a leader in the market for desktop applications. Its main strength is its innovative spreadsheet package. In spite of competition from 'clone' products from Borland International and Microsoft Corporation, it has managed to retain its market position as the leader of the spreadsheet package. In comparison Lotus' other desktop products have enjoyed only moderate success, but the company is hoping to obtain a similar leading position with its new Notes product--which it hopes will become the 1-2-3 of the groupware product market.

Lotus' position as a leader in the business applications software market is directly due to the success of 1-2-3. It is the tacitly agreed standard for spreadsheets, because it was the first and the most used, and because it offers cross-platform compatibility. It is an unwritten requirement that any other spreadsheet on the market should provide 1-2-3 compatibility.

Lotus has a strong customer base. Its strength lies in its size and diversity. Lotus' product offerings (in particular its spreadsheet) appeal to a generic market, irrespective of company size or industry sector. The client base for 1-2-3 ranges from the business in a start-up situation to the multinational corporation. It also has the added advantage of being available on a number of hardware platforms.

Another strength is its financial performance. Historically, Lotus has a good financial track record and has managed to perform very well over the last two years, reporting strong revenue and profit growth at a time when other vendors active in the same market have incurred losses.

The main challenge for Lotus, in the face of competitive pressure, will be to continue developing leading edge products in order to maintain its position as the supplier of the industry standard product.

## Conclusions

Lotus entered the personal computing market in 1982 as a pioneer in spreadsheet technology. Since then Lotus has expanded its product line to encompass a broad range of applications software across all major platforms, including spreadsheets, word processing, graphics and electronic mail. This expansion has been achieved by concentrated internal development and through mutually beneficial joint ventures, mergers, partial acquisitions, or full acquisitions of advance products, technologies and companies. Once a product has been acquired, it is fully incorporated into Lotus' product suite. Likewise, personnel of companies acquired become integrated members of Lotus' technology and support teams.

Lotus' worldwide revenues increased 20% in 1991 as a result of continuing growth of 1-2-3, its best-selling spreadsheet, and across-the-board increases in its three other major product lines. In addition, Lotus launched a number of new products and new businesses which contributed to the growth in revenues. Sales growth of 1-2-3 was driven by a number of new releases, predominantly 1-2-3 for Windows, Release 2.3 and 3.1+ for the DOS market and to a lesser extent 1-2-3 for Macintosh and for the HP95LX palmtop computer. Upgrade revenues doubled in 1991 as a result of these new releases and from the Company's direct mail marketing campaign to capitalise on the growing installed base of Lotus products.

Lotus 1-2-3 remains the company's best selling product despite its diversification into other business desktop products. Because of its early success, 1-2-3 has become an industry standard product. Lotus aims to capitalise on this success by exploiting increasing connectivity between platforms. It is offering both a powerful communications and development environment in its Notes product and a suite of tightly integrated software products and information services.

To retain its market position Lotus will need to continue developing leading edge products. The company is addressing this through a number of vendor alliances. The strategic alliances now being formed by Lotus are aimed at ensuring that its business communications products are technologically advanced, and available to users regardless of their current IT and networking structures. Two such agreements have been made with Novell and IBM.

Lotus and Novell are working closely together to integrate Lotus cc:Mail and Lotus Notes further with Novell networks, with both companies able to take advantage of future developments. Although a planned merger between the two companies did not materialise, the strategic alliance now in force assures customers that the products will be interoperable, whether the suppliers are one company or two.

The IBM alliance includes a marketing agreement as well as shared technology. IBM will market both Lotus cc:Mail and Lotus Notes as an integral part of its office environment strategy. It is expected that sales of these products will increase greatly as a result.



## COMPANY PROFILE

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### **MCDONNELL DOUGLAS INFORMATION SYSTEMS INTERNATIONAL**

Boundary Way International  
Hemel Hempstead HP2 7HU  
United Kingdom  
Tel: 44 442 232 424  
Fax: 44 442 564 54

President: Jerry L. Causley  
Number of Employees: 1,775  
Revenue (FYE 31-12-91): £140 million (MDIS)

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### **The Company**

McDonnell Douglas Information Systems International (MDISI) is now headquartered in the U.K. and is organised as an independent stand-alone company. The announced intent is that MDISI will include other owners besides MDC in the future, although MDC will continue to maintain a majority shareholding.

McDonnell Douglas Systems Integration Company (the U.S. wing of the former McDonnell Douglas Information System division) was officially dissolved January 1, 1990, and several of its units were divested, put up for sale, or spun off.

MDISI was created by MDC in April 1984 out of three key elements; Microdata, McAuto and TYMNET.

The company produces and distributes Open Systems hardware and software products as well as a variety of application packages and services to the manufacturing industry, financial institutions, commerce, central and local government, police forces, and health care organisations.

MDISI has subsidiaries in the following European countries: Austria, Belgium, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden and the U.S. It operates through subsidiaries or agencies in Australia, New Zealand, Canada, Asia and Africa.

In the U.S. and Canada, its computer hardware is distributed by Novadyne Computer Systems.

MDISI has OEM agreements with Digital Equipment Corporation, Motorola and Encore Corporation.

## Organisational Structure

MDISI is organised in several business areas:

- Commerce and industrial
- Health
- Finance
- Police
- Local government
- Central government
- Information systems engineering (ISE).

The principal activities of the company are the design, manufacture, sale, support and leasing of real-time or on-line interactive database computers, computer peripherals, tailor-made application software programs, networking products, and the provision of computer consultancy and software services.

All businesses except ISE sell systems manufactured at the MDIS factory in the U.K.

### Exhibit A

**1991 EMPLOYEE CHART  
MCDONNELL DOUGLAS INFORMATION SYSTEMS LTD.**

DEPARTMENT	NUMBER OF EMPLOYEES*
Sales and marketing	797
Customer service	433
Development	245
Manufacturing	115
Accounting and administration	185
<b>TOTAL</b>	<b>1,775</b>

*\*Average weekly number of employees during 1991.*

### Exhibit B

**OTHER EXECUTIVES**

NAME	POSITION
Doug Thomson	Marketing Director
Ian Knox	Financial Director

## Acquisition History

In the 1970s, the Computer Machinery Company of the U.K. (CMC) was bought by Microdata Corporation of the U.S. This combined hardware manufacturing operation was then bought by McDonnell Douglas in the late 1970s. In the 1960s, McDonnell Douglas had created McAuto Corporation to support all its internal EDP requirements. In March 1984, McDonnell Douglas bought Tymshare Inc., the operator of TYMNET.

Other acquisitions in the 1980s included:

- January 1985, MDISI acquired Tymshare UK, the U.K. subsidiary of Tymshare Inc., from Unilever. Terms were not announced.
- April 1985, MDISI acquired Applied Research Cambridge Ltd. of the U.K. (ARC) for approximately \$12.5 million. ARC specialized in CAD systems, with 1984 revenues of some \$12 million.
- April 1987, MDISI acquired Isis Computer Services of the U.K. for £3.3 million. Isis specialized in PICK software and applications for payroll, personnel, police and local government on McDonnell Douglas hardware.

In late 1986, MDISI and British Telecom of the U.K. (BT) tried a joint venture on EDI, but this was abandoned by both firms. Then in August 1989, MDISI announced the sale of the North American side of TYMNET to BT for \$355 million. The turnover of the North American TYMNET operations was about \$250 million.

In November 1991, MDISI sold its CAD/CAM products business to EDS.

## Major Recent Projects

- Supply of a computer-based administration system for the Serjeant at Arms Office at the Palace of Westminster.
- Implementation of a £7 million resource management and hospital information system - including a facilities management contract serving the five hospitals of Clwyd Health Authority in the U.K.
- A \$50 million hospital systems contract with the State of Queensland.
- Prime Contractor for a turnkey project, valued at £4 million, for a comprehensive hospital information system at Darlington District Health Authority in the U.K.
- Implementation of the second phase of a computer-based integrated hospital information system for the Bahrain Ministry of Health.

**Key Products  
and Services****(i) Technology****Research and Development:**

Approximately 8% of the company's revenues are invested in research and development in centres in the U.S., the U.K. and Australia.

The McDonnell Douglas manufacturing facility at Hemel Hempstead in the U.K. is housed in a £20 million complex producing computer products for world markets.

**Information Systems Engineering (ISE):**

The company is one of very few computer-aided systems engineering (CASE) vendors able to offer a total life cycle software development environment of methodology, workbench and a fourth-generation application generator - PRO-IV.

ProKit\*WORKBENCH is for the analysis and design phases of software development, and the McDonnell Douglas fourth-generation language (4GL) PRO-IV interfaces with it to produce application code.

Many international corporations have adopted PRO-IV as an Open Software solution to protect existing hardware and software investments, or multiple hardware platforms, often inherited through acquisition or merger.

**(ii) Key Application Products**

The company produces a range of powerful mini and supermini computer hardware at its factory in the U.K. These systems form part of a company's Open Systems strategy and, in addition to high performance hardware, provide applications solutions for the company's specific markets. These applications will operate either under UNIX or under the company's Reality Operating System (a super-set of the PICK operating system) to suit the needs of the customer.

MDIS's modular portfolio of human resources software encompassing personnel, payroll and pensions, is a "horizontal" series of applications covering all the markets in which the company operates.

The software will operate at any level, from PCs to superminis, and meets the specific, diverse functional needs of organisations, from police forces to major banks and from local government and hospitals to manufacturers and distribution companies.

MDISI has issued nearly 500 licences for its human resources software.

The McDonnell Douglas URICA Library Systems is acknowledged as a de facto European standard for automated library systems. Customers include Universities of Southampton, Bath, Bradford, and Limerick; Natural History Museum and National Library of Wales.

### **(iii) Industry Knowledge**

Apart from its ISE division, MDISI is organised into business areas targeting the following sectors.

#### **Commercial and Industrial:**

In the commercial and industrial sectors, the company's systems are used by many of the world's leading commercial, manufacturing and distribution organisations for a variety of applications from the essentials of human resources (HR) management to sophisticated process manufacturing techniques.

With its MATRIX systems, MDISI provides a totally integrated environment designed to support manufacturing and distribution organisations. MATRIX is designed to help companies reduce overhead, shorten lead times and cut unit costs.

#### **Health:**

MDISI is a leading supplier of Hospital Information Systems developed specifically to meet the requirements of the U.K National Health Service, where it has over 260 customers, as well as health care customers in Australia, Hong Kong, the Middle East, Spain and Italy.

The company's systems cover a range of applications and specialities, including patient administration; order communications; payroll; radiology; pharmacy; and pathology.

At the beginning of 1991, MDISI formed a partnership with Italy's largest state-owned conglomerate, Istituto per la Ricostruzione Industriale, to market health systems in Italy.

MDISI supplies a third of U.K. ambulance services with command and control systems for emergency and patient transport services. The company has recently been awarded a contract by the Scottish Ambulance Service for the ALERT emergency system, which is to be used throughout Scotland.

**Banking and Finance:**

In the financial sector, MDISI has a strong presence in Australia, the U.K., France and Germany.

Sales of its Integrated Banking Systems (IBS) are increasing, the most recent being the Treasury services arm of Abbey National Plc.

The portfolio of products being marketed has been extended and now includes confirmation management, life and general insurance administration, futures and options and mortgage administrations. A complete confirmation management system has made its mark with a 16-site worldwide contract for Barclays Bank, and subsequently with Baring Brothers, Hill Samuel and Mitsubishi Bank.

The company pioneered the development of software now used by Britain's police forces in major incidents such as murder and rape investigations. The system - called MICAH (Major Incident Computer Applications conforming to HOLMES) - has seen operational use in many hundreds of investigations, with considerable success. MICAH has also been installed by Police forces in Australia, Hong Kong and the U.S.

Another major development is CRISIS (Casualty Recording Information Sorting and Identification System).

Fourteen of the U.K.'s 52 police forces use MDISI's human resources applications.

**Local Government:**

A particular stronghold of MDISI is in local government where, as one of the leading suppliers, it provides a complete range of computer-based solutions to address issues such as competitive tendering, revenue systems, finance, housing, planning and asset management. Over 190 U.K. local authorities use systems from MDISI.

**Central Government:**

MDISI has supplied over 250 computer-based systems to central governments.

The company's Human Resource Management systems are currently being used by 12 government departments, while its Registry Information Management System has been selected by the Employment Department to handle the administration of 200,000 policy files.

Financial  
Information

## Exhibit C

MCDONNELL DOUGLAS INFORMATION SYSTEMS LTD. (MDIS)  
FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenue	121	131	144	155	140*
Annual Growth Rate (%)	14	8	10	8	(10)
Profit before tax	29	26	24	16	14
Annual Growth Rate (%)	16	(10)	(8)	(33)	(13)

\* The company's 1991 revenues were down by 10% mainly because of the sale of their U.S. parent of McDonnell Douglas Systems Integration, and therefore of MDIS's subsidiary Shapa Data Ltd., to EDS for \$250 million. This reduced revenue by approximately £20 million.

## Exhibit D

## 1991 MARKET ANALYSIS FOR INDUSTRY SECTOR (\$ MILLIONS)

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	65	24
Process Manufacturing	25	9
Transportation	5	2
Utilities	10	4
Telecommunications	10	4
Retail Distribution	10	4
Wholesale Distribution	15	5
Banking and Finance	10	4
Healthcare	30	11
Local Government	45	16
National Government	5	2
Business Services	10	4
Other	30	11
<b>TOTAL</b>	<b>270</b>	<b>100</b>

\*INPUT estimate

**Market Analysis****Exhibit E****1991 MARKET ANALYSIS BY DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Network Services	5	2
Software Products	40	15
Professional Services	40	15
Turnkey Systems	180	66
Systems Integration	5	2
<b>TOTAL</b>	<b>270</b>	<b>100</b>

\*INPUT estimate

**Exhibit F****1991 MARKET ANALYSIS BY GEOGRAPHIC REGION  
(\$ MILLIONS)**

REGION	REVENUES*	PERCENT
France	41	15
Germany	13	5
U.K.	202	75
Italy	3	1
Netherlands	3	1
Belgium/Luxemburg	8	3
<b>TOTAL</b>	<b>270</b>	<b>100</b>

\*INPUT estimate

**Company Strategies****(a) Company Direction:**

1992 is seen by MDISI as a challenging year. However, the company expects revenue and profits to be maintained through the introduction of new Open Systems hardware products, more sophisticated software and the formation of new marketing and technological accords such as those struck with Fujitsu in Japan and Istituto per la Ricostruzione Industriale (IRI) in Italy.

**(b) Strengths and Weaknesses:**

MDISI's main strengths can be summarised as follows:

- Strong sales and customers orientation
- A wide range of popular application packages
- A strong vertical focus
- Strong skills in PICK-related software.

MDISI possesses a strong management which is clearly very customer driven and which responds quickly to changes in its customers' markets. The company supplies a range of applications which have been developed specifically to address key issues in its clients' businesses such as competitive tendering in U.K. local government and new requirements in the health care sector.

MDISI has a strong vertical focus, particularly in local government and in the health sector, where its industry knowledge and expertise in supplying solutions has made the company a leading supplier.

**(c) Conclusions:**

MDISI is a niche player focused on its customer base, offering competitive products that meet sufficiently with customer requirements.

The company's products have primarily been based on the PICK operating system but it is now offering and developing applications under UNIX.

The bulk of MDISI's revenues are derived from the U.K. with an estimated 15% from France.

MDISI plans to continue its focus on the niche markets it supplies, expanding geographically by forming strategic alliances with vendors that are well positioned in the equivalent sectors in other countries.

MDISI's main advantage in the market-place is its strong vertical expertise and its continuing ability to satisfy, and hence retain, its installed customer base.



## COMPANY PROFILE

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### **MICROSOFT CORPORATION**

1 Microsoft Way  
Redmond, WA 98052-6399  
USA  
Tel: (206) 882-8080  
Fax: (206) 936-7329

President: Michael Hallman  
Status: Public  
Number of Employees: 8,200  
Revenue: (FYE 30-6-91) \$1.8 billion, (\$697 million Europe)

### **EUROPEAN HEADQUARTERS MICROSOFT EUROPE**

60 Avenue de President Wilson  
Cedex 70  
92046 Paris La Defense  
France  
Tel: 33 1 69 86 46 46  
Fax: 33 1 64 46 06 60

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### **The Company**

Microsoft was formed in 1975 by Bill Gates and Paul Allen. In 1981 it was responsible for supplying the operating system MS-DOS for the IBM PC. MS-DOS is now installed on in excess of 50 million PCs.

Since then the company has developed a wide range of PC and Apple Macintosh applications software for business and professional use, in addition to programming languages, operating systems and networking software.

Microsoft is now one of the largest software houses in the world with a \$1.18 billion 1991 turnover. Although founded in the United States, Microsoft has subsidiaries throughout the world, and its international revenues exceed those of the United States. In 1991 international revenues accounted for 57.3% of overall revenues.

Microsoft offers more than 75 products in 25 languages. It employs more than 8,200 people in 26 countries around the world.

In 1990 Microsoft established the Information Technology Integration Services group (ITIS) to help clients with strategic planning, systems and networking services and innovative applications of personal computer technology.

Microsoft set up a Network Division in the U.K. in July of 1990 as part of a worldwide move to become a major player in the network market. This represented the largest single investment Microsoft has ever made, both in terms of cost and development effort. Microsoft's first retail, networking product, LAN Manager 2.0, shipped in September 1990.

In March 1992 Microsoft announced its intention to acquire Fox Software, a private developer of database software for desktop computers, for 1.36 million Microsoft shares. The deal is worth about \$175 million. Microsoft is now planning to move into the database market.

## Organisational Structure

### Exhibit A

#### MICROSOFT KEY EXECUTIVES

William Gates	Chairman and Chief Executive Officer
Mike Maples	Executive Vice President
Steven Ballmer	Executive Vice President
Francis Gaudette	Executive Vice President

### Company Direction

Microsoft is clearly focused on the PC Market. Its vision is to see a computer on every desk.

Microsoft has its corporate headquarters in the U.S. Its European operations are headquartered in Paris. Microsoft has 13 subsidiaries in Europe. These are located in Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the U.K.

To consolidate its European operations and to prepare for the changing European business climate during the 1990s, Microsoft has centralised many operations at its Paris headquarters, headed by European President Bernard Vergnes. This office works closely with the European subsidiaries to coordinate product and support decisions.

**Products and Services**

Microsoft is committed to supplying business applications on three platforms--Macintosh, OS/2 and Windows--in software application categories: Word Processing, Spreadsheet, Integrated Software, Database, Presentation, Graphics and Project Management.

Microsoft offers more than 75 products in 25 languages.

Key Products include:

**Microsoft Word for Windows**

This product can be used to combine text, graphics and numerical data, and routine jobs can be automated with features such as macros and document templates. Features range from sophisticated formatting, such as multicolumn layouts and manual character spacing, to group productivity and advanced editing features.

**Microsoft Excel for Windows**

A Toolbar feature offers one-step access to such tasks as formatting, summing and charting. Performance features range from spreadsheet analytics, such as linking, Solver tool and 144 built-in functions, to charting, advanced database, macros, and Lotus 1-2-3 compatibility.

**Microsoft PowerPoint Presentation Graphics for Windows**

Features range from word processing, spelling checker and drawing capabilities to presentation management tools, including the ability to store an entire presentation in a single file.

**Microsoft Project for Windows--A Business Project Planning System**

Performance features include a variety of scheduling, resource management and tracking methods, as well as the capability to work with multiple projects and exchange data with a number of other applications.

**Microsoft Mail--Electronic Mail for PC networks**

Microsoft Mail supports major desk-top systems including MS-DOS, the Microsoft Windows operating system and remote MS-DOS systems. Mail runs on virtually every key PC network and integrates with Microsoft Mail for AppleTalk networks. It offers gateways to messaging environments such as PROFS, OfficeVision/VM, and X.400 to allow seamless interoperability with existing systems. Mail also supports users with extensive message management features such as folders, priority sorting and logging. Administrative features, including global directories, user-profile templates and security features like password protection and encryption, are designed to make everyday tasks easier.

In addition to their availability as separately packaged products, the first three applications listed above--coupled with Microsoft Mail--are being distributed together as Microsoft Office for Windows.

**Local Area Networking Products**

Microsoft also offers a family of Local Area Networking Products, including Microsoft LAN Manager, Microsoft SQL Server and DCA/Microsoft Communication Servers.

**Application Development Tools**

Microsoft develops and markets a range of development tools for DOS, Windows and OS/2. The languages include Basic, C, COBOL, FORTRAN, Assembler and Pascal.

Its latest offering is its Usual Basic programming system for Windows, a development language that automates the creation of Microsoft Windows-based programs.

Other Microsoft products include:

- Microsoft BallPoint mouse, a pointing device designed for notebook and laptop computers.
- Specifications for the Multimedia Personal Computer, developed by Microsoft in cooperation with many hardware and software companies to be used in interactive applications for Windows. The company's Multimedia Publishing group develops and markets multimedia titles for business, home and school.

- Microsoft Windows for Pen Computing, designed to bring the windows environment to computers that are controlled with an electronic pen. Leading developers (such as Borland, Lotus, Oracle, PenSoft and Slate) support Windows for Pen Computing with their applications.
- The Microsoft Solution Series of products geared for use at home and in growing businesses. Products in the series include Microsoft Works, Publishes and Money.

### Support Services

Microsoft also offers support services; these are divided into three divisions.

- Microsoft Product Support Services provides technical support for all of the company's products and utilities.
- Microsoft Education and Consulting Services, Microsoft University, attended by more than 20,000 developers and DP professionals since 1987, offers hands-on technical training. Microsoft Consulting Services provides customers with strategic advice about IT planning and implementation of solutions.
- Microsoft Press is the company's book publishing division. It has more than 123 titles in print with more than 100 of these published in 16 languages.

### Financial Information

A five-year summary of Microsoft's financial performance is given in Exhibit B. The company has maintained an extraordinary growth performance that is expected to have moderated very little in 1992.

#### Exhibit B

**FIVE-YEAR FINANCIAL SUMMARY FOR MICROSOFT CORPORATION (FYE 30-6) (\$ MILLIONS)**

	1987	1988	1989	1990	1991
Revenue	345.9	590.8	803.5	1183.4	1843.4
Annual Growth Rate (%)	-	71	36	47	56
Profit Before Tax	-	-	250.8	410.6	670.6
Annual Growth Rate (%)	-	-	-	64	63
Profit After Tax	71.9	123.9	170.5	279.2	462.7
Annual Growth Rate %	-	72	38	64	66

**Market Analysis****Exhibit C****1991 MARKET ANALYSIS BY GEOGRAPHIC AREA  
(\$ THOUSANDS)**

Revenue	Domestic Operations	European Operations	Other International Operations	Eliminations	Total
Customers	974,359	697,729	171,344	-	1,843,432
Intercompany	236,107	326,414	15,626	-578,147	-
<b>TOTAL</b>	<b>1,210,466</b>	<b>1,024,143</b>	<b>186,970</b>	<b>-578,147</b>	<b>1,843,432</b>

Source: Microsoft

Note: Domestic operations: revenues from customers includes export revenues of \$187.7 million. The majority of this export revenue results from OEM distribution in the Far East and Europe.

A breakdown on international revenues for 1991, 1990 and 1989 is shown in Exhibit D.

**Exhibit D****MICROSOFT INTERNATIONAL REVENUES (\$ THOUSANDS)**

	1991	1990	1989
European Operations	697,729	363,294	212,018
Other International Operations	171,344	102,522	72,456
Export	187,734	184,433	153,787
<b>Total</b>	<b>1,056,807</b>	<b>650,249</b>	<b>438,261</b>
<b>Percentage of Total Revenues</b>	<b>57.3%</b>	<b>54.9%</b>	<b>54.5%</b>

Source: Microsoft

## Exhibit E

1991 MARKET ANALYSIS BY PRODUCT GROUP (\$ MILLIONS)

	REVENUE	PERCENT
Systems/Languages	663.6	36
Applications	940.1	51
Other	239.7	13
TOTAL	1,843.4	100

Source: Microsoft

## Exhibit F

1991 MARKET ANALYSIS BY SALES CHANNEL  
(\$ MILLIONS)

	REVENUE	PERCENT
International finished goods	903.3	49
OEM	331.8	18
Domestic Reseller	571.4	31
Other	36.9	2
TOTAL	1,843.4	100

Source: Microsoft

Exhibits G, H and I show INPUT's estimated breakdown of Microsoft's 1991 European Software and Services revenues by industry sector, by delivery mode and by country, respectively.

## Exhibit G

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

	REVENUES*	PERCENT
Discrete Manufacturing	190	20
Process Manufacturing	85	9
Transportation	30	3
Utilities	30	3
Telecommunications	25	3
Retail Distribution	50	5
Wholesale Distribution	30	3
Banking and Finance	190	20
Insurance	80	8
Health care	50	5
Education	15	2
Local Government	70	7
National Government	65	7
Business Services	40	4
Total	950	100

\*INPUT estimates--calendar 1991

## Exhibit H

**1991 MARKET ANALYSIS BY DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Application Software Products	380	40
Systems Software Products	550	58
Professional Services	20	2
Total Software and Services	950	100

\*INPUT estimates--calendar 1991

## Exhibit I

**1991 MARKET ANALYSIS BY COUNTRY MARKET  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	228	24
Germany	181	19
U.K.	151	16
Italy	124	13
Netherlands	52	5
Belgium/Lux.	29	3
Spain	38	4
Switzerland	38	4
Austria	16	2
Sweden	29	3
Denmark	19	2
Norway	14	1
Finland	14	1
Ireland	10	1
Greece	5	1
Other Europe	4	0
Eastern Europe	1	0
TOTAL	950	100

\*INPUT estimates--calendar 1991

**Company  
Strategies****(a) Company Direction**

Microsoft is clearly focused on the PC market. The company's products span the applications, networking, systems and languages arenas. Recently, Microsoft has become increasingly known for its Windows graphical user interface and an impressive range of business applications.

In 1991 Microsoft reported worldwide revenues of \$1.8 billion, a 56% increase over the \$1.2 billion recorded in 1990. Net profit reached \$462.7 million, an increase of 66% over 1990 European revenues.

Though many factors have contributed to these results, three are particularly noteworthy.

- The growing adoption of the Microsoft Windows graphical environment.
- Success in Microsoft's international sales channel, where finished goods grew 82%
- Continuing strength and product development in the company's key businesses, which include operating systems, applications products and pointing devices--and the ongoing shift towards desktop PC solutions in place of old-style, mainframe-based alternatives.

Microsoft's current and future strategy is to shape how it does business around the realities of the market and the demands of its customers.

Microsoft aims to respond to these challenges by investing in key technologies and by using sales and marketing resources to rigourously promote its products. The company believes that these activities are essential to realising its long-term corporate strategies and keeping the company at the forefront of the industry.

As part of this investment, Microsoft has recently centralised many of its European operations at its Paris Headquarters, to serve the changing European marketplace. Additionally, to underscore increasing emphasis on supporting customers, Microsoft has expanded and centralised its product support function.

Toward that end, Microsoft is concentrating on building a better sales presence in Europe to solidify relationships with large accounts. It is investing heavily in training for staff on customer service and technical needs in the pan-European environment.

### **(b) Strengths and Weaknesses**

Microsoft's main strengths include:

- Dominance of the PC Markets
- Strong management team
- Technological innovation
- Effective distribution strategy

Microsoft's primary strength is its dominance of the PC marketplace. Microsoft has gone from strength to strength since it was first launched in 1975. Its MS-DOS operating system is installed on over 50 million IBM PCs and their clones, and it has established itself as a leader with OS/2. Microsoft has also performed well in many sectors of the huge market for PC applications software, in particular in the spreadsheet and word processing areas. Microsoft is the leader in total PC software sales with revenue in excess of \$1.8 billion, an increase of 56% on 1990 sales.

Microsoft has a strong management team led by its dynamic CEO, William Gates. Gates is considered by many to be the most powerful man in the PC industry. He has directed and led Microsoft from its infancy to its present position as a billion dollar corporation. Microsoft management pride themselves on their customer-driven approach and have recently restructured the company into five product divisions to meet the demands of the market. The company keeps a watchful eye on market developments and is prepared to continually reshape its business to satisfy customer needs.

Microsoft has built a reputation as a technologically innovative company. It supplies IBM with its MS-DOS operating system, setting an industry standard. It has also developed OS/2 and successfully moved into the applications solutions market with a number of quality products.

Microsoft was also among the first companies to make a commitment to the graphical user interface (GUI) and to developing the graphical applications for the Apple Macintosh PC.

In addition, Microsoft Windows has also spurred others in the software industry, with the release of more than 1,200 Windows-based applications from more than 700 developers, including Lotus, Borland, Software Publishing and Symantec.

Microsoft possesses another strength in its successful distribution strategy. For example, in just one year, Microsoft has distributed more than four million copies of Microsoft Windows 3.0 around the world, through reseller channels, upgrades to existing customers and hardware manufacturers.

While product licenses are sold through distributors, Microsoft keeps control of upgrade licences, introducing a significant upgrade each year and selling directly to the client. Thus, upgrades contribute quite significantly to overall revenues, in fact probably more than the sales of the original product.

Microsoft looks set for further growth. However, the company could encounter set-backs if the market does not accept its Windows standards as readily or as quickly as the company hopes. Performance could also be affected if Microsoft's moves into the database market prove more costly than anticipated and if it does not gain a significant share of this market.

## Conclusions

Microsoft has built its reputation around the MS-DOS operating system. During its history the company has become universally recognised as playing a key role in the development of the PC industry through its innovative product development.

Aside from its applications, Microsoft is a major producer of software development tools and has also moved into the connectivity area with the development of networking software.

The acquisition of Fox Software heralds Microsoft's entry into the database management software field, one of the few categories of desktop computer software in which it does not compete. It has been developing software programs, but has yet to launch any products.

With its acquisition of Fox and entry into the database market, Microsoft will compete directly with Borland International, the leading maker of database software for PCs. Microsoft has been eager to get into the database business for a long time and in the past has proved willing to lose huge amounts of money to gain market share in new business areas.

Thus, it is probable that its entry will see a price war in the database market not least between Microsoft and Borland.

In fact, the similarities between Microsoft and Borland are striking. They are the only major firms in the PC software business that have competed effectively in more than one product category. Both pride themselves on their technical acumen and corresponding ability to attract and keep engineering talent. Also, both are led by intensely competitive men who have demonstrated the rare ability to build a company from scratch and then manage a large and complex organisation.

Microsoft plans to offer customers a complete family of superior scalable database applications and development environments. If it succeeds and obtains significant market share--it is possible that it could take over from Borland as the leader in the database market.



## COMPANY PROFILE

### **NOVELL, INC.**

Corporate Headquarters  
122 East 1700 South  
Provo, UT 84606  
USA  
Tel: (801) 429-7000  
Fax: (800) 453 1267

President: Raymond Noorda  
Status: Public  
Number of Employees 3,000 (worldwide)  
Revenue (FYE 29-10-91)  
\$640 million (worldwide)  
\$197 million (Europe) approx.

### **The Company**

Novell, Inc., was founded in 1983 and is listed on the NASDAQ Exchange.

Novell is an operating systems software company and a developer of network services and specialised and general purpose operating system software products, including NetWare and DR DOS. Novell's NetWare network computing products manage and control the sharing of services, data and applications among computer workgroups, departmental networks and across businesswide information systems.

In 1989, Novell acquired Excelan, Inc., a producer of network hardware and protocol software. The acquisition brought Novell seven years of open systems experience with data communications protocols.

Novell's products are used across all industries, from small businesses to government, higher education and large commercial organisations. In 1983 Novell employed 14 people; today it employs more than 3,000 people in 49 locations worldwide. While product development is focused in California and Utah--the company's headquarters--international operations are the fastest growth area for Novell.

International sales represented 44% of turnover during 1991, with the figure exceeding 50% for the first time at the start of 1992. 70% of international sales are in Europe where, in the U.K., Novell has been strengthening its operations.

**Organisational  
Structure**

The worldwide operations of the corporation are directed from its worldwide headquarters in Provo, Utah, USA and each of the subsidiary companies are managed as semi-autonomous units. There is, therefore, no European headquarters operation.

Novell has subsidiaries in the following European countries:

- Belgium
- France
- Germany
- Italy
- Spain
- Sweden
- Switzerland
- United Kingdom

Novell offers products and services in the following areas:

- Network operating systems products
- Network services products
- Communications services products
- Internetworking products
- Distributed application development tools
- Network connecting options
- Network management products
- Support and education programmes

**Acquisition History**

Novell has made a number of acquisitions in its 9-year history. These include:

In November 1986 Novell acquired Santa Clara Systems, a Silicon Valley manufacturer of storage subsystems and local area network products.

In March 1987 Novell acquired CXI of Sunnyvale, California, a developer of LAN-to-host gateway software.

Also in March Novell acquired Softcraft of Austin, Texas, a developer of database and programming tool software.

In June 1989 Novell acquired Excelan of San Jose, California, a leader in UNIX, Apple Macintosh and standards-based networking.

In October 1991 Novell acquired the U.S. company Digital Research, Inc. Based in Monterey, California, Digital Research, a software developer, produces a clone of Microsoft DOS.

## Key Products and Services

### Technology

The Novell Integrated Computing Architecture (NICA) is the strategic architecture upon which Novell products are built. NICA represents Novell's approach to providing network services for application integration in a distributed, multivendor environment. With NICA, Novell is delivering a unified, open software solution that allows new and existing applications to share information and system resources regardless of the applications involved, where they reside, or the vendor platforms on which they may reside.

Novell's architecture for distributing network services allows products and applications from several different vendors to be integrated into a powerful network computing system. Some of the products and facilities distributed by the services within the Novell Integrated Computing Architecture are illustrated in Exhibit A.

#### Exhibit A

**NOVELL INTEGRATED COMPUTING ARCHITECTURE (NICA)**

SERVICES	PRODUCTS
File and Print	DOS, Macintosh, OS/2, UNIX native file and print access
Database	Integrated record manager and SQL, third-party SQL
Communications	IPX/SPX, SNA, TCP/IP, AppleTalk, OSI, TI, X.25, asynchronous
Messaging	MHS, X.400, SMTP, SNADS/DISSOS
Client operating system	DOS, Windows, OS/2 EE, UNIX, Macintosh
Application Server operating system	OS/2, UNIX, MVS, VM, VMS, DOS
Data integrity	Disk mirroring, server mirroring etc.
Security	User, administrator, data, resource, encryption, workstation auditing
Network management	Workgroup, administrator, enterprise, NetView
Connection	Built-in IPX and TCP/IP router
Multivendor platform	Thousands of servers, adapters, disks, backup systems
Application program interfaces	NetWare, NetBIOS, CPI-C, Named Pipes, Berkeley Sockets

The company's main product offerings are divided into the following categories:

- Network operating systems products
- Network services products
- Communications services products
- Internetworking products
- Network connectivity options
- Network management products
- Distributed applications development tools
- Support and education programmes

### **Network Operating Systems Products**

Novell's server operating systems provide high-performance network computing solutions to a variety of business needs. The server operating system, also referred to as the network operating system, resides in the server and provides the connectivity that completes the computer system, creating the environment in which the network operates. File and record locking, security, print spooling and interprocess communications are just a few examples of the functions the network operating system provides to the network and the applications running on it. The network operating system also determines the performance, multivendor support security and reliability of the network.

NetWare operating systems are designed to optimise the key components of network functionality, including the network operating system architecture, performance, reliability, security and standards support.

Novell offers the following network operating systems products:

- Workstation connectivity products
- Database services products
- Messaging services products

## **Network Service Products**

Novell first supported network services as client-server applications in NetWare v2.1 through the value-added process (VAP) interface. The VAP interface allows client-server application engines to run in the NetWare server with NetWare. Today, the VAP interface is available in v2.2 of the operating system and supports a variety of network services.

NetWare v3.11 contains a new set of programming interfaces and tools for network services. With NetWare v3.11, client-server applications run as NetWare Loadable Modules (NLMs). NetWare v3.11 provides the additional power needed to support heavily used network services in the server.

NLM applications have full access to NetWare security. An application can create its own security in the Netware environment or map directly into the security profiles defined by the network manager for each user. The NLM interface provides a standard programming environment, making NLMs as easy to develop and test as DOS applications. Because of the modular architecture in NetWare v3.11, NLMs can be loaded and linked to the operating system without downing the server.

## **Communication Products**

Novell offers a comprehensive set of communications products that are fully integrated with the NetWare environment. These products provide the businesswide connectivity capabilities needed to support network computing.

NetWare Communications Services is a family of Novell products that give users access to host resources and wide area networks. It is a completely integrated LAN communications system designed to support any combination of LAN-to-host, LAN-to-LAN or remote LAN access services. NetWare Communications Services products currently available are NetWare for SAA and NetWare Asynchronous Communication Services (NACS) v3.0.

NetWare Communication Services products provide complete hardware independence to communications services users. They are designed to support the most popular desktop operating systems, including DOS, Windows, Macintosh, OS/2 and UNIX workstations. In addition, users can access host resources and wide area networks via a variety of external connections, including SDLC, Token-Ring, X.25, ISDN, TI and asynchronous lines.

Novell's communications products are divided into three groups:

- LAN-to-IBM host connectivity products
- Dial-in/dial-out connectivity products
- Communication Services management products

### **Internetworking Products**

Novell's internetworking products tie local NetWare networks into wide area networks, assisting customers as they expand their computing resources. The software products run on industry standard hardware and provide real-world solutions.

Novell currently offers three internetworking products: NetWare Link/64, NetWare Link/TI and the NetWare MultiProtocol Router-Basic Version 1.0.

The Link products enable customers to interconnect geographically remote NetWare networks. The Multiprotocol Router connects Ethernet, Token-Ring, LocalTalk and Arcnet networks together in any combination and provides transparent access to file servers, printers and mail systems. It enables users to remove the routing function from the file server processor, which can improve server performance.

### **Network Connectivity Options**

Novell offers users a variety of TCP/IP connectivity options for DOS, Windows, OS/2 and Macintosh users with its LAN WorkPlace products. These products allow users to access NetWare servers and TCP/IP host resources simultaneously.

### **Network Management Products**

Novell has focused on providing management of its own products since NetWare was first released in 1982. Network management capabilities have been built into administrative utilities such as NetWare Remote Management Facility, NetWare Name Service, FCONSOLE, SYCON and Filter. In 1992 Novell introduced a new network management product, the NetWare Services Manager.

Novell also offers products that are not restricted to the Novell environment. These include the LANtern network monitor and LANalyzer, a network analyser.

## **Distributed Application Development Tools**

Novell's support for client-server database applications is provided in two products: NetWare Btrieve and NetWare SQL. NetWare Btrieve is a server-based, key-indexed record manager, while NetWare SQL provides direct relational access to Btrieve-based data.

Available in VAP and NLM configurations, both products are designed to run as application back ends, providing database server operations for third-party front-end applications. Novell also provides client-based versions of both the NetWare Btrieve and NetWare SQL engines. The client-based versions of these products run in a variety of workstation environments and can be distributed without royalty fee.

## **Support and Education Programmes**

Novell support and education programs promote network computing expertise in the distribution channels and increase cooperative development with technology partners. In addition, Novell offers training courses designed for each segment of the network computing industry.

Users can choose to provide their own support using information products like NetWare, the NetWare Support Encyclopedia (NSE) and NetWare Application Notes. These products provide up-to-date technical information, drivers and utilities. Novell also provides advanced training for on-site support personnel through Novell education programs. Or, if users prefer not to hire full-time support personnel, their local Novell Authorized Resellers can provide qualified staff to handle technical problems. Novell Authorized Resellers are encouraged to provide product service and support directly to their customers.

To help customers keep current with the latest NetWare technology, Novell offers NetWare UpGrade and NetWare Maintenance. If customer concerns are not being solved through normal service channels, Novell's Customer Satisfaction department works directly with the customer to find a solution.

Novell has established education programs to help users maximize their NetWare productivity and train service providers to effectively support NetWare products. Training programmes include:

The Certified NetWare Engineer (CNE) programme, which helps improve the technical support offered by resellers and service providers.

The Novell Authorised Education Centre (NAEC) programme provides educational resources for training NetWare users and CNE conditions.

**Financial  
Information****Exhibit B****NOVELL CONSOLIDATED REVENUES  
FIVE-YEAR FINANCIAL SUMMARY (FYE END OCT)**

	1987	1988	1989	1990	1991
Revenue	221.8	347.0	421.9	497.5	640.0
Annual Growth rate(%)	85	56	22	18	29
Profit before Tax	41.9	55.9	77.1	145.1	-
Annual Growth rate(%)	65	33	38	88	-
Profit after Tax	24.4	35.9	48.5	94.3	162.5
Annual Growth rate(%)	71	47	35	94	72


**Market  
Analysis**
**Exhibit C**
**1991 MARKET ANALYSIS BY COUNTRY EUROPEAN SOFTWARE AND  
SERVICES (\$ MILLIONS)**

	REVENUES*	PERCENT
France	40	20
Germany	46	23
U.K.	30	15
Italy	26	13
Netherlands	12	6
Belgium/Lux'	7	4
Spain	10	5
Switzerland	8	4
Austria	3	1
Sweden	5	3
Denmark	4	2
Norway	2	1
Finland	3	1
Ireland	2	1
Other Europe	2	1
<b>TOTAL INFORMATION SERVICES</b>	<b>200</b>	<b>100</b>

\*INPUT estimate

## Exhibit D

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	40	20
Process Manufacturing	20	10
Transportation	5	2
Utilities	5	2
Telecommunications	5	2
Retail Distribution	10	5
Wholesale Distribution	5	2
Banking and Finance	40	20
Insurance	15	8
Health care	10	5
Education	5	2
Local Government	15	8
National Government	15	8
Business Services	10	5
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>200</b>	<b>100</b>

\*INPUT estimates

## Exhibit E

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
SOFTWARE AND SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Systems Software Products	200	100
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>200</b>	<b>100</b>

\*INPUT estimates

**(a) Company Direction**

Novell's overall direction and approach, whether supporting customers or developing products, is simply put in its mission statement. Novell's mission today, as it was when the company began in 1983, is to accelerate the growth of network computing.

The company is committed to providing network computing solutions that support and enhance all industry standards and that are flexible, powerful and reliable enough to meet clients' current and future business needs.

Novell takes pride in being a customer-driven company and steadily makes product development decisions in response to changing customer needs.

Novell has made many developments to meet customer needs in the 1990s including an expanding array of NetWare network services products and new partnerships with computer systems vendors. These steps are helping lead the change toward seamless integration of mainframes and minicomputers with workstations and desktop systems.

To further address customer service needs, Novell has created the Technical Support Alliance, an innovative new vehicle for delivering comprehensive multivendor service and support to users of computer networks. TSA is an inter-company system for quickly resolving problems through a network of service. More than 30 leading computing products vendors have joined the program since it was launched in the spring of 1991.

By definition, network computing brings together a complex array of products, creating a need for systems-oriented service and support. To provide reliable and expert customer support, Novell has created a multilevel service organisation to give users a choice of service plans. Novell provides customers with the tools, training and backup they require to be self-sufficient.

Novell views information infrastructure as important to effective customer support and the growth of network computing. Accordingly it is expanding education, training and service programmes to provide consistent levels of support to customers around the globe. To date more than 11,000 people have earned Certified NetWare Engineer (CNE) status through training available from 650 Novell Authorised Education centres worldwide.

### **Strengths and Weaknesses**

Novell's main strengths can be summarised as:

- Strong Market Position
- Strong Technological Innovation
- Customer-driven
- Large installed base
- Broad range of networking products

Novell has established a clear position of leadership in the networking operating systems arena. It has made a successful transition from the equipment market to the software market. In fact, its success has been so great that Novell now has an estimated 70% market share for networking operating systems.

Novell is an industry innovator and has played a major role in accelerating the growth of network computing. Novell's commitment is to continue its leadership in this field, acting as a catalyst to grow the industry. Between 1983 and 1991 the company had no fewer than 36 technological firsts, which has placed it at the forefront of networking.

### **Computing Market**

Novell is a customer-driven company. Its objective is to meet customer needs. This objective drives Novell's development of new products, whether network services or client operating systems and its partnerships with vendors and others across its market.

Novell has a large customer base with an estimated 12 million users on NetWare LANs worldwide. Almost 20,000 customers, both commercial and private developers, use Novell's Btrieve and NetWare SQL database enquiries.

Novell has assembled a balanced array of networking products for a wide variety of computing needs--from the smallest workgroup of desktop computers to departmental systems and the largest businesswide environments. The company's products support standards to integrate DOS, OS/2, Windows, Apple Macintosh and UNIX desktop computers with each other and IBM, DEC and UNIX hosts.

Novell has no obvious weakness, but it is possible that the company could experience a setback should delays occur in delivery of new products or updated versions.

### **Conclusions**

Novell is a market-driven software company dedicated to the development of high-performance network computing products.

Novell has established a position of leadership in the network environment. This has been achieved through a focus on developing products that customers want and through its industry partner approach.

The merger of Novell and Digital research in 1991 is a central part of Novell's effort to respond to customer needs for client operating system software that is very tightly integrated with network services such as network management.

This central role as an operating systems software company means that Novell is well positioned to work with leading vendors across the industry, such as systems and network suppliers, systems integrators and application software companies.

The success of this approach is reflected in the company's consistent record of growth and profitability. Sales of \$640 million in 1991 have placed Novell among the world's largest software companies. Indeed, with LANs worldwide, the company has a dominant position at the forefront of Network Computing.

Simply put, Novell is a major success story and a virtual powerhouse in the network operating systems market. Novell is way ahead of its competitors with the only decent challenge coming from Microsoft.

Input expects that Novell will retain its market position and continue to lead the way forward in network computing.

As we went to press Novell announced that it had acquired AT&T's majority shareholding in UNIX System Laboratory, developers of the widely used market leading generating system UNIX System V.



## COMPANY PROFILE

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### **ING. C. OLIVETTI AND CO. S.P.A.**

Corporate Headquarters  
Via Jerris  
77 Ivrea  
10015 Italy  
Tel.: 39 1255200

Chairman: Carls De Benedetti  
Status: Public  
Number of Employees: Olivetti Group - 46,500  
(worldwide)  
Total Group Revenue Worldwide (FYE 31-12):  
86071 Lire Billions  
Europe: 7086.6 Lire Billions  
\$1,785 Million (Information Services Revenue) and  
INPUT estimate

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### **The Company**

Olivetti is a leading European-based information technology group. It is active at the forefront of the computer and office automation industries, with products ranging from personal computers and minicomputers to specialized workstations and office equipment and software.

Olivetti was founded in 1908 at Ivrea by Camillo Olivetti, and the company became famous in the 1920s as the first Italian manufacturer of typewriters. In the 1960s, the company transformed its production activity to include electronic technologies alongside the traditional mechanical processes; in 1978, it was the first company in the world to present an electronic typewriter. In the 1980s, it was the first European company to enter the information technology field with products like the M24 personal computer, minicomputers and networks. In 1987, Olivetti was among the first major international producers to announce its adherence to open systems when it launched OSA (Open Systems Architecture), a technological platform that encompasses the leading industry standards and that is the basis of Olivetti's system offer.

The group employs some 46,500 people and has 19 research and development locations in eight countries and nearly 20 production facilities around the world. Commercial subsidiaries and a technical assistance organization operate directly in 32 countries through 4,500 dealers and 1,000 Systems Partners, and a network of agents is active in 90 countries where subsidiaries are not present.

INPUT LIBRARY

The Olivetti Group has significant holdings in over 200 companies in the information technology field and related sectors (components, tooling, engineering, etc.). Its most important foreign subsidiaries include TA Triumph Adler AG in Germany (typewriters, videotyping systems, personal and portable computers); Acorn Computers Ltd. in the U.K. (personal computers for education); U.S.-based ISC/Bunker Ramo, through which Olivetti ranks second in the U.S. branch banking automation market; and Scanvest Olivetti in Norway, one of Scandinavia's largest information technology suppliers.

## **Organisational Structure**

Olivetti's streamlined organisational structure is designed for responsiveness to changing market demands and optimisation of production and managerial cost structures. The group is divided into three principal operating divisions that correspond to the major business areas in which Olivetti is engaged: Central Operations, Diversified Activities, which support activities provided by central staff, and Olivetti Information Services (OIS).

Central Operations includes two units: Industrial Operations, which is responsible for designing, developing and producing the entire Olivetti product offerings; and Marketing of Services, which oversees the commercialisation and distribution of solutions and services based on OSA.

Diversified Activities, Planning and Development plans and co-ordinates the various technological and commercial development programs of the company, in particular those related to Triumph Adler, Acorn, Teknecomp (components), Synthesis (office furniture), and Omnitel (Cellular telephones).

Public Authorities coordinates the strategic and commercial development of Olivetti's presence in the central and local public administration sectors in Italy, and the company's participation in national and regional programs for industrial investments in southern Italy.

Olivetti Information Services in Italy offers computer services for business users: software, value-added network services, voice/data services, and managerial consulting and training.

**Key Products  
and Services**

Olivetti categorises its offerings into three product areas:

- Products
- Systems
- Business Services

**Products**

Olivetti is a leading manufacturer of PCs and minicomputers. It supplies midrange systems, PC-based workstations and computing peripherals including printers and terminals. In 1991, Olivetti entirely renewed its PC offering, with a new family of portable PCs, 'Olivetti 1'. For the Italian market, Olivetti offers a broad range of mainframes.

**Systems**

In the software and services sector, Olivetti has broadened considerably the range of optimised solutions available for its hardware architecture, through its product offerings and a wide network of technological agreements. The strengthening of the Olivetti Systems Partner network was an important factor in building Olivetti's range of applications.

Olivetti's products and services are built around its Open Systems Architecture (OSA), which is an integrated architecture containing reference standards, technologies, added-value services and products that interconnect to make a complete system offer. Olivetti offers specialised software products and solutions within the OSA framework. Product offerings include:

- Systems software
- Applications software
- CASE tools
- Network and system management applications

Olivetti recently announced its integrated CASE tools (I-CASE) range, designed to automate banking applications development for open systems.

The tools are aimed at helping branches to build competitive applications that take advantage of recent re-regulation, quickly and at lower costs than using traditional methods.

According to Olivetti, there is a banking applications backlog of between two and four years. Olivetti's I-CASE tools shorten development time by offering visual programming technologies, navigation tools and customisable building blocks.

Using a choice of standard GUIs (graphical user interfaces, such as OS/2 Presentation Manager and MS Windows) and running on client/server architecture, Olivetti's Open CASE incorporates the Envision upper CASE tool. Lower CASE tools feature A2B, Olivetti's new Application Builder tool, as well as DME and Visual Form. The shared Open Systems Architecture Repository, which supports OS/2 and UNIX SVR 4.0, ensures data integration across upper and lower CASE tools.

Another recent product is Olivetti's Departmental Management Centre (DMC) solution for network and system management on the Olivetti ISX 5000 line of systems, based on UNIX system VRelease.

Olivetti's DMC makes use of Digital Equipment Corporation's software technology by building on an open standards-based platform to provide customers with advanced management solutions. These can effectively manage, through an integrated and consistent approach, all aspects of distributed, heterogeneous computing.

The new DMC product also integrates Olivetti's existing management offering. This product will evolve to provide scalable departmental- and enterprise-level solutions within the Olivetti Open Systems Architecture network and system management profile.

### **Business Services**

Olivetti's newly formed Business Services area will focus on expanding the company's presence in the two product areas mentioned: products and systems.

The Olivetti Group also has a dedicated unit, Olivetti Information Systems (OIS), which specialises in a wide range of software and service activities, including consultancy training and systems development. OIS operates primarily in the Italian market where it is one of the leading software and service vendors.

OIS operates through a number of subsidiaries, each of which specialises in a particular market or sector. It is also involved in the Software Engineering Research Centre, a joint project formed with a number of large companies and banks in Italy.

**Financial  
Information****Exhibit A****OLIVETTI GROUP, FIVE-YEAR FINANCIAL SUMMARY (FYE 31/12) (LIRE BILLIONS)**

	1987	1988	1989	1990	1991
Revenues	7,375.5	8,407.4	9,031.2	9,036.5	8,607.1
Annual Growth Rate (%)	-	14	7	.05	(5)
Gross Profit	-	-	-	3,185.3	2,809.5
Annual Growth Rate (%)	-	-	-	-	(11.8)
Profit after Tax	-	-	-	60.4	(459.8)
Annual Growth Rate (%)	-	-	-	-	(861)

The above summary is for the whole of the Olivetti Group.

**Market  
Analysis****Exhibit B****1991 MARKET ANALYSIS BY GEOGRAPHIC REGION  
(LIRE BILLIONS)**

GEOGRAPHIC REGION	REVENUES*	PERCENT
Italy	3,276.7	38.1
Germany	743.3	8.6
France	619.3	7.2
U.K.	615.2	7.1
Others	1,832.1	21.3
<b>TOTAL EUROPE</b>	<b>7,086.6</b>	<b>82.3</b>
Japan	309.0	3.6
Other Far Eastern Countries and Africa	422.5	5.0
<b>TOTAL</b>	<b>731.5</b>	<b>8.5</b>
North America	522.7	6.1
Latin America	266.3	3.1
<b>OVERALL TOTAL</b>	<b>8,607.1</b>	<b>100</b>

Source: Olivetti

\* Total Group Revenues

## Exhibit C

**1991 MARKET ANALYSIS BY OLIVETTI-REPORTED BUSINESS ACTIVITY  
(LIRE BILLIONS)**

ACTIVITY	REVENUES*	PERCENT
Products	5,023.7	58.4
Software	782.8	9.1
Customer Engineering	1,371.0	15.9
Accessories, Spare Parts and Other Revenues	1,429.6	16.6
<b>TOTAL GROUP</b>	<b>8,607.1</b>	<b>100</b>

Source: Olivetti Group

\* Total Group Revenues

INPUT estimates that 1991 software and service revenues for Olivetti in Europe amounted to \$830 million. Total 1991 European information services revenues, including equipment services revenues, are estimated by INPUT to have reached \$1,785 million. Exhibits D, E and F provide a breakdown of these European revenues by INPUT classifications.

## Exhibit D

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	205	25
Process Manufacturing	60	7
Transportation	35	4
Utilities	15	2
Retail Distribution	85	10
Wholesale Distribution	50	6
Banking and Finance	90	11
Insurance	25	3
Local Government	50	6
National Government	90	11
Business Services	40	5
Unclassified	85	10
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>830</b>	<b>100</b>

\*INPUT estimates

## Exhibit E

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN INFORMATION SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Processing Services	40	2
Turnkey Systems	190	11
Applications Software Products	35	2
Systems Software Products	90	5
Professional Services	350	20
Network Services	15	1
Systems Operations	40	2
Systems Integration	70	4
Equipment Services	955	53
<b>TOTAL INFORMATION SERVICES</b>	<b>1,785</b>	<b>100</b>

\* INPUT estimates

## Exhibit F

**1991 MARKET ANALYSIS BY COUNTRY  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUES*	PERCENT
France	151	8
Germany	124	7
U.K.	197	11
Italy	901	50
Netherlands	44	2
Belgium/Luxembourg	38	2
Spain	98	6
Switzerland	26	2
Denmark	35	2
Norway	141	8
Other	30	2
<b>TOTAL INFORMATION SERVICES</b>	<b>1,785</b>	<b>100</b>

\* INPUT estimates

**Company  
Strategies****(a) Company Direction**

Olivetti's strategic objective is to meet the market challenge of the 1990s as an innovative organisation, capable of providing users with a flexible, open response as their needs change. In particular, Olivetti intends to consolidate its double market role as a product supplier and a solution provider - supplying standard products, services, systems integrated skills and related offerings.

To achieve this goal, Olivetti is taking steps to boost innovation in its offerings, restructure its organisation in line with market trends, reduce costs and control cash flow. The first measures were launched in 1991 and further action was taken in 1992. The objectives of the corporate reorganisations were to streamline structures, reduce the number of management levels, introduce corporate models permitting greater reactivity to market and technology trends, concentrate resources on research, applications development, marketing and services, with particular emphasis in the most strategic geographic markets.

Olivetti views achieving the specific objectives of its 1992 company plan as vital to recovering the level of competitiveness needed to keep pace with current trends in the IT industry.

**(b) Strengths and Weaknesses**

Olivetti's main strengths can be summarised as follows:

- Established vendor
- Capacity for innovation
- Extensive sales and support organisation
- Wide-ranging network of alliances
- Commitment to research and development

One of Olivetti's main strengths is its position as an established vendor. The company was founded in 1908 as a manufacturer of typewriters and was the first company in the world to present an electronic typewriter in 1978. It also has a strong capacity for innovation with the development in the 1980s of its M24 PC and its minicomputers and networks. It was also among the first of the equipment vendors to announce commitment to open systems when it launched its Open Systems Architecture in 1987.

A major factor in the Olivetti Group's success has been and continues to be its strong commitment to research and development (R&D). Investments over the period 1987-1991 amounted to Lire 2,300 billion and approximately 3,800 people work in the group's R&D laboratories around the world. In addition, the proportion of R&D spending to hardware and software product revenues doubled from 4% to 8% in the period from 1979 to 1991.

The Olivetti Group has a direct sales and support organisation active in 32 countries and a network of more than 5,500 Systems Partners and dealers. It operates through agents in 90 other countries where no sales subsidiary is present. The direct sales organisation is subdivided into five geographical commercial areas and works with dedicated units in specific vertical markets such as finance, public authorities and retail.

Olivetti has another strength in its extensive network of alliances with technology leaders such as Intel, Microsoft, Novell, Andersen Consulting, Digital, Informix and Oracle. Olivetti has been building its alliance network for over a decade. Its most recent alliance has been with Digital for advanced joint R&D work.

The main challenge facing Olivetti is to establish a clear identity in the software and services market. Olivetti Information Systems is a large vendor in European terms, but operates in the Italian market and has little activity outside its domestic borders. Olivetti is very product-oriented elsewhere in Europe and hence is not perceived as a software and services company. It needs to enhance its visibility in this sector with perhaps an acquisition strategy or movement of the OIS capability into Europe.

### **(c) Conclusions**

Olivetti has a strong record of financial performance, but, like its competitors, has been affected by the slowdown of the computer industry in Europe. To improve its profitability, it is in the process of effecting a vigorous programme of structural reorganisation and staff reduction.

During 1991, OIS strengthened the operating revenues of its subsidiaries. Overall revenues and offerings grew (64% and 7.8%, respectively) and revenues amounted to Lire 712.8 billion. The reduction in the overall group revenues was attributable to lower sales in hardware product revenues.

Olivetti Group is confident that its restructuring and streamlining programme will enable it to perform better in 1992 and beyond.

Olivetti aims to move more towards software and services market, where it sees its future in integrated solutions. It has a track record as a ground breaker and has the added advantage, unlike other systems vendors making the transition, of not being tied to an installed base of proprietary systems. If it can contain costs and promote a more visible image of its direction in the software and services market, Olivetti should be equipped to keep pace with the overall development of the market.

## COMPANY PROFILE

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### ORACLE CORPORATION

500 Oracle Parkway  
P.O. Box 659506  
Redwood Shores, CA 94065  
United States  
Tel.: 1-414-506-7000  
Fax: 1-415-506-7200

President: Lawrence Ellison  
Status: Public  
Revenue (FYE 31-5-92): Worldwide \$1.17 Billion;  
European \$569 Million  
Number of Employees: Worldwide 8,000  
European 3,000

European Headquarters  
Oracle Park  
Bittams Lane  
Guildford Road  
Chertsey  
Surrey KT16 9RG  
United Kingdom  
Tel.: 44 93 287 2020  
Fax: 44 93 287 4625

INPUT LIBRARY

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### The Company

Oracle was founded in the U.S. in 1977. The company is a market leader in the development of relational database products.

Oracle's flagship product, the ORACLE relational database management system was introduced in 1979 and is surrounded by a family of related applications and development tools. The company claims to be the world's largest supplier of database software and offers its products, along with support, education, consulting and systems integration services, in 92 countries around the world.

When first released in 1979, ORACLE was both the world's first relational database and the first database to implement the SQL language, now an industry standard. In 1983, ORACLE was transported to mainframes, minicomputers and PCs. In 1991, ORACLE became the first database to run on a massively parallel computer and to perform 1,000 transactions per second on the industry-standard TPC-B benchmark.

In 1992, the company introduced ORACLE7, a co-operative-server database, which enables applications to retrieve and update data located on multiple computers.

Oracle Europe was set up in 1983. It comprises a network of wholly owned subsidiaries, supplemented by distributors in over 50 cities.

Oracle's European operations reported 1992 revenues of \$569 million and has over 3,000 employees.

In Europe, 10,000 copies of ORACLE are in use by 7,000 customers.

## Organisational Structure

Oracle Corporation key executives and their respective areas of responsibility are shown in Exhibit A.

### Exhibit A

#### KEY EXECUTIVES

EXECUTIVE	AREA OF RESPONSIBILITY
Lawrence Lane Chairman and CEO	Oracle Corporation
Raymond Lane President	Oracle U.S.
Geoffrey Squire Executive Vice President and CEO	Oracle International Operations
Anthony Craig Senior Vice President	Oracle Intercontinental Division
Jay Nussbaum Senior Vice President and General Manager	Oracle Federal Division

Oracle has subsidiaries in most countries in Europe. Oracle Europe's headquarters are at Chertsey in the U.K. Product development laboratories are sited at Chertsey, De Meern in the Netherlands, and in Edinburgh, Paris, Dublin and Dusseldorf.

Each European country office has its own Managing Director. The U.K., French and German operations report directly to the U.S. The organisational structure of the U.K. company is shown in Exhibit B.

ORACLE UK - ORGANISATIONAL STRUCTURE

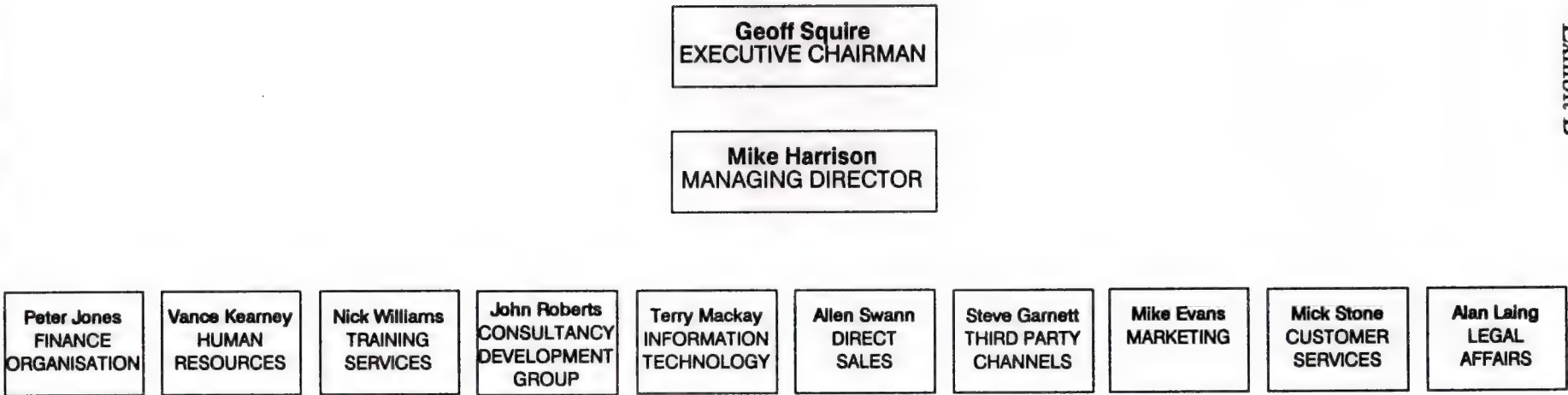


Exhibit B

ORACLE CORPORATION

INPUT

**Major Recent Projects** Major contracts won by Oracle in the U.K. include:

City Hospital, Nottingham - to supply a turnkey Hospital Information Support System (HISS). The contract is worth £8.5 million. The ORACLE system will run on five Pyramid UNIX machines and is scheduled to be completed in Spring 1994.

European Passenger Services Ltd. (EPS) - to supply a turnkey computer system. The system comprises financial and human resources software from prime contractor Oracle, engineering software Oracle VAR, Kvaerner Engineering, and rostering and time attendance software from Oracle VAR, Workplace Systems Ltd. All systems will run on Sequent UNIX hardware. Oracle consultants will be responsible for all implementation and systems integration over the next 12 months.

The National Health Service in Scotland has selected Oracle as its preferred relational database management system (RDBMS) software environment for the next three years as part of a software-led procurement. The contract is part of the NHS in Scotland's continuing move towards open systems and UNIX. Oracle software was selected over a competitive offering from Informix. Oracle RDBMS will be used to run health service applications, including administrative and clinical functions throughout Scotland, and applications produced for the ORACLE environment will be operational in early 1993.

Bristol City Council - Oracle will supply its council tax and benefits applications in a contract worth £275,000. Oracle's software will run on a Sequent Symmetry 2000/750 UNIX machine. More than 300 users will access the council tax and benefits applications via ICL terminals over a series of local- and wide-area networks.

The Department of Trade and Industry (DTI) has selected ORACLE as its strategic relational database and fourth-generation development environment. A number of ORACLE systems, which are expected to support up to 3,000 users over the next three years, will be developed to meet new requirements and to replace a number of existing databases in the DTI. ORACLE will run on ICL VME mainframes, UNIX midrange machines and DOS PCs, and will be designed to provide a graphical user interface (GUI) under Microsoft Windows with a client/server architecture. The DTI will use Oracle's training and consultancy services to facilitate the implementation of the systems.



## Key Products and Services

### Research and Development

In 1992, Oracle invested 13% of revenues in research and development. Development programmes at Redwood Shores, California, and Chertsey, Surrey, continue to enhance ORACLE and its associated products and to take Oracle into new markets.

Oracle Europe is continually expanding the range of hardware and software supported by ORACLE at the European Product Line Development Centres in De Meern in the Netherlands and in Chertsey, England; Edinburgh, Scotland; Dublin, Ireland; Paris, France; and Dusseldorf, Germany. National Language Support is developed at De Meern.

### Hardware Environment

Oracle supports over one hundred hardware platforms, including most major mainframes, minicomputers, PCs, Sun and a wide range of other UNIX machines. European hardware platforms include ICL, SNI, Philips, Olivetti, Norsk Data and Bull.

### Products

Oracle offers a standard range of products worldwide with a commitment to local language and local hardware support in all countries. It offers products in the following categories:

- Relational databases
- CASE and applications development tools
- ORACLE servers
- PC-based client tools
- Office automation and end-user products
- Business applications

Oracle's main products are listed in Exhibit C.

### Exhibit C

#### MAIN PRODUCTS

##### Relational Database

- ORACLE 7 database management system with procedural, distributed and parallel server options
- SQL\*Connect and SQL\*Net
- National Language Support

##### CASE Tools

- CASE\*Designer
- CASE\*Dictionary
- CASE\*Method
- CASE\*Generator

##### Other Applications Development Tools

- SQL\*Forms
- SQL\*Plus
- SQL\*Menu
- Pro\*SQL
- SQL\*ReportWriter
- Oracle Graphics
- ORACLE for dBASE Interpreter
- ORACLE for dBASE Compiler

##### ORACLE Servers

- ORACLE Server for OS/2
- ORACLE Server for NetWare 386
- ORACLE Server for UNIX V/386
- ORACLE Server for Banyan VINES
- ORACLE Server for Macintosh

##### PC-Based Client Tools

- Oracle Card
- Oracle for Windows/DDE Manager
- ORACLE Database Add-In for Lotus 1-2-3

##### Office Automation and End User Products

- ORACLE\*Mail
- SQL\*TextRetrieval
- ORACLE Data Query
- SQL\*Calc
- Easy\*SQL
- SQL\*QMX

##### Business Applications

###### FINANCIAL

- General Ledger
- Payables
- Purchasing
- Inventory
- Receivables
- Revenue Accounting
- Alert
- Assets

###### Human Resources:

- Personnel
- Payroll

The ORACLE7 co-operative-server database is the foundation upon which Oracle has built its suite of CASE applications development and office automation tools. All Oracle software tools are integrated.

ORACLE7 supports industry-standard SQL query-and-update transactions that automatically retrieve and modify data on multiple servers - even if some of the data is stored in a non-ORACLE database such as IBM's DB2 or DEC's Rdb.

Oracle's CASE tools generate complete running applications using the company's application tools. In turn, its application development tools use one of the company's office automation tools - the electronic mail system - to distribute reports, graphs, etc. Oracle's complete integrated tool set lets the client build complete and integrated applications.

Oracle's accounting and manufacturing applications are developed using its co-operative-server database and tools.

#### Services:

Oracle has four service organisations:

- Support
- Education
- Consulting
- Systems Integration

#### Support:

Oracle's support organisation is available 24 hours a day, every day and aims to give customers immediate answers to their questions and provide assistance when problems arise. The company offers user-continuous access to its on-line support database, enabling users to report and track problems, and communicate among themselves and with Oracle support personnel using electronic mail.

#### Education:

Oracle's education services offer a full curriculum of courses at its 53 training centres around the world. Classes are designed for all levels of system user, from non-data processing professional to application analyst, programmer and database administrator. The company offers customised training courses to meet individual customer needs and performs on-site training using the customer's own data and applications.

**Consulting:**

Oracle's consulting services range from CASE modelling and business process re-engineering through database design and application implementation. Oracle's focus is to help its customers make the transition to a modern network computing environment. Oracle has particular expertise in the areas of downsizing, open systems technology and networking.

**Systems Integration:**

Oracle's systems integration services provide customers a cost-effective, single source of responsibility for the implementation of total system solutions - hardware, software and networking.

**Financial  
Information****Exhibit D****ORACLE CORPORATION FIVE-YEAR FINANCIAL SUMMARY (FYE 31-5) (\$ MILLIONS)**

	1988	1989	1990	1991	1992
Revenues	282.1	570.6	916.4	1027.9	1178.5
Annual Growth Rate (%)	-	102	61	12	15
Profit before Tax	-	-	118.2	(13.2)	96.1
Annual Growth Rate (%_	-	-	-	(111)	828
Profit after Tax	42.9	67.5	80.9	(12.4)	61.5
Annual Growth Rate (%)	-	57	20	(115)	596
Earnings per Share	.32	.50	.59	(.90)	.43

# Market Analysis

## Exhibit E

### 1992 MARKET ANALYSIS BY GEOGRAPHIC REGION (\$ MILLIONS)

GEOGRAPHIC REGION	REVENUE	PERCENT
Domestic Revenues	429.0	36.4
European Revenues	568.9	48.3
Other International Revenues	180.6	15.3
<b>TOTAL</b>	<b>1,178.5</b>	<b>100</b>

Source: Oracle

## Exhibit F

### 1991 MARKET ANALYSIS BY COUNTRY EUROPEAN INFORMATION SERVICES (\$ MILLIONS)

COUNTRY	REVENUES*	PERCENT (ROUNDED)
France	90	22
Germany	57	14
U.K.	104	25
Italy	6	1
Netherlands	29	7
Belgium/Lux.	15	4
Spain	17	4
Switzerland	17	4
Austria	8	2
Sweden	25	6
Denmark	19	5
Norway	13	3
Finland	6	1
Other Europe	4	1
<b>TOTAL</b>	<b>410</b>	<b>100</b>

\* INPUT estimates

## Exhibit G

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

	REVENUES*	PERCENT (ROUNDED)
Discrete Manufacturing	85	21
Process Manufacturing	35	9
Transportation	10	2
Utilities	10	2
Telecommunications	10	2
Retail Distribution	25	6
Wholesale Distribution	10	2
Banking and Finance	85	21
Insurance	35	9
Health Care	20	5
Education	5	1
Local Government	30	7
National Government	30	7
Business Services	20	5
<b>TOTAL</b>	<b>410</b>	<b>100</b>

\* INPUT estimates

## Exhibit H

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUES*	PERCENT
Applications Software		
Production	8	2
Systems Software		
Products	299	73
Professional Services	103	25
<b>TOTAL SOFTWARE AND SERVICES</b>	<b>410</b>	<b>100</b>

\* INPUT estimates

**Company  
Direction****Company Direction:**

Oracle is committed to continuing to provide technical innovation without compromising product quality. Its ultimate product quality goal is to fix critical software defects within 24 hours. Oracle sees working towards its goals as fundamental to the process of continuously improving quality.

Technical leadership, product and service quality are seen by Oracle as ensuring its success. This has been Oracles strategy for success since it was founded and underlies everything it plans to do as a company in the future.

Oracle views high-quality services as support to its products as a critical part of this strategy. The Worldwide Support group works through 60 technical assistance centres to handle 6,500 customer calls per week for approximately 16,000 customers using 1,200 products. During 1991, the group made dramatic improvements in the number of calls handled and in the number of issues closed real time during the customer's initial call.

As the database market matures, Oracle expects to retain its market share while increasing its position in the CASE and applications development tools arena.

Oracle remains committed to research and development and will continue to be at the forefront of technical innovation.

Oracle views partnership with other vendors as important to its future development. Through the Business Partnership Programme, Oracle promotes the development of specialist software solutions for a wide range of industries and disciplines.

The Independent Software Vendor Programme ensures that interfaces are provided between ORACLE and many popular software products.

**Oracle's Main Strengths:**

- Technical leadership
- Strong, open product range
- Established vendor
- Strong European penetration

Since it was founded in 1977, Oracle has repeatedly proven its technological leadership and technical expertise with its impressive list of 'technical firsts'. In 1979, Oracle introduced the world's first SQL-based RDBMS and has developed no less than 16 other technically innovative products, including the most recent, ORACLE7, its co-operative-server database.

Another strength is that, unlike other vendor offerings, all Oracle products are open, portable, distributed and integrated. With Oracle, organisations can integrate different hardware, different operating systems, different networks and even different database management systems into a seamless, enterprise-wide computing and information resource. The products are available on over 100 hardware platforms - spanning mainframes, minicomputers and microcomputers.

Oracle has a strong reputation as an established vendor with a good financial history. Since 1977, the company has succeeded in doubling its turnover in all but the last three years. It is publicly owned and quoted on Nasdaq.

Oracle is a worldwide company with a particularly strong European presence. Currently, 49% of revenue is derived from Europe, and this figure is expected to increase. Oracle has a subsidiary in almost every European country, which is supplemented by a wide distributor network.

The main threat to Oracle is the increasing availability of RDBMS products from other vendors on UNIX platforms and particularly in the minicomputer market in which Oracle mainly operates. To some degree, Oracle has counteracted this by its move into the CASE tools and applications software markets.

Oracle has grown very rapidly since it was founded in 1977 and is now one of the world's leading independent software vendors.

The company reported worldwide revenues of \$1.17 billion (an increase of 15% over 1990) and net profits of \$61.5 million (from losses of \$115 million in 1990). European revenues reached \$568.8 million and now account for nearly 49% of overall turnover.

Oracle's core product is its relational database management system. Oracle has added to and diversified its product line by developing a complete family of CASE, applications development and office automation tools.

Oracle expects to retain its market position in the database market, but as the market matures expects revenues from its applications offerings to increase significantly.

Historically, Oracle's main competitor in the relational database market has been Ingres. However, over the last few years, Oracle has surpassed Ingres in terms of revenue and the gap continues to widen.

Oracle's market success is based on continuing technical innovation. Oracle pioneered the use of structured query language (SQL), now accepted as the standard language for database management systems. The ORACLE RDBMS was the first to provide a true distributed database, allowing data and application systems to be distributed both geographically and across computer hardware from different manufacturers.



## RAET N.V.

Eendrachtlaan 10  
3526 LB Utrecht  
Netherlands  
Tel.: 33 1 30 82 96 11  
Fax: 33 1 30 88 78 82

Managing Board of Directors: H. Mtthes  
(Chairman), A.E.R. Helmich, J.A.M. Rutges,  
J.L.M. Van Rhijn  
Status: Private  
Number of Employees: 2,686  
Revenue (FYE 31-12-91): DFL 476.8 Million

## The Company

RAET N.V. was founded in 1957 and is a 100% privately owned company.

INPUT estimates RAET to be the second-largest software and services company in the Netherlands (after Volmac).

In the Netherlands, RAET offers fully integrated and compatible information system products and services. Different services are offered to serve the specific needs of large companies, national and local government and semistate organisations, health care, agricultural industry, trade, professional services and industry. Automation Center provides international support to large companies and a certain number of market segments - such as direct mail, car dealers and trade houses.

## Organisational Structure

RAET N.V. has centred its products and services around four core activities. Its operating companies and business units are grouped within the scope of these activities to focus on targeted market sectors and specific applications. The four activities are:

- **Business solutions** for health care, education, associations, municipalities, agricultural industries, notary-barristers and accountancy offices, trading companies and automotive industries, as well as general financial applications and personnel and pay-roll systems.
- **Information processing and network facilities**, operating technologically advanced computer centres and networks on a national and international scale and thus offering the possibility to contract computer processing, network services and the management and maintenance of applications to RAET.

- **Automation projects and consultancy**, aimed at development, management and maintenance of information systems, information technology, software development, consultancy and training.
- **Office automation**, such as the delivery and installation of micro- and midrange computers for office use, technical maintenance and logistics management, and the link to possible internal and external networks.

A substantial number of RAET's clients are Dutch-based, but more emphasis is now being put on international markets. Under the name of Automation Center, RAET has offices in Germany, Switzerland, Austria, Belgium and Luxembourg. Automation Center's services and products are primarily aimed at applications and facilities for information processing and networking.

RAET N.V.'s main subsidiaries and associated companies are listed in Exhibits A and B.

#### Exhibit A

##### SUBSIDIARIES

NAME	COUNTRY	% OWNED
ACI (International AG)	Switzerland	100.0
RAET Advies B.V.	NL	100.0
RAET Opleidingen B.V.	NL	100.0
RAET Systems & Services B.V.	NL	100.0
RAET Ziekenhuis Informaticsystemen B.V.	NL	100.0
LARC Computercentrum B.V.	NL	100.0
RAET Applicaties B.V.	NL	100.0
RAET Gezondheidszorg en Welzijn B.V.	NL	100.0
RAET Informatie Verwerking B.V.	NL	100.0
RAET Inegratie Services B.V.	NL	100.0
RAET Lokale Automatiserings Diensten B.V.	NL	100.0
Silvac B.V.	NL	51.1
RAET Systems & Services B.V.	NL	100.0

## Exhibit B

## ASSOCIATED COMPANIES

NAME	COUNTRY	% OWNED
Vastgoed Informatiesytemen B.V.	NL	50.0
CSN Beheer B.V.	NL	100.0
Management for Systems & Operations B.V. (MS&O)	NL	100.0
ICIM B.V.	NL	31.5
RIOS Groep B.V.	NL	30.0
Administra Computing Groep N.V.	Belgium	17.0

As of December 1991, RAET employed 2,686 staff, an increase of 18% from year-end 1990. This increase is primarily due to acquisitions.

The average number of employees for 1991 was 2,618. Approximately 19% of staff were employed outside the Netherlands.

### Recent Acquisitions

RAET N.V. made a number of acquisitions in 1991.

- In January 1991, the company acquired a 51.1% interest in Silvac B.V., an independent system base specialising in IBM AS/400s and related products and services. Also in January, the activities of AAG Automatisering were acquired and transferred to RAET Gezonheidszorg en Welzijn B.V.
- In mid 1991, RAET acquired a participation in Computer Software Nederland, a software company that provides standard software for financial administrations.
- In June 1991, RAET acquired the activities of Topdata, and these were transferred to the joint venture MS&O B.V. (Netherlands).

RAET also increased its shareholdings in two of its companies.

- In January 1991, the ownership interest in LARC Computercentrum B.V. was increased from 76% to 100%.
- Also in January, the 50% interest in RLAD B.V. was increased to 100%.

#### 1992 Acquisitions:

- In 1992, RAET increased its share in MS&O B.V. to 100%. MS&O has been incorporated into RAET's Information Processing and Network Facilities activity.
- In 1992, RAET increased its shareholding in Computer Software Nederland to 100%. The company has been incorporated into the Business Solutions activity under RAET Applications.

## Key Products and Services

RAET offers its products and services through four core activity sectors.

### Business Solutions

RAET's Business Solutions activities are grouped in specialised operating companies and business units, each one selling its specific knowledge and expertise to the sector of trade or industry it serves. Market positions vary from one operating company to the next, but on average they have a strong presence.

The operating companies in this sector are:

- RAET Applications, which through its seven business units, supplies horizontal application services.
- RAET Decentralised Government, which operates within the Dutch local government market. For municipalities and polder boards, RAET offers comprehensive systems with standard applications for minicomputer systems.

- RAET Health and Welfare and RAET Hospital Information Systems - both of these companies address the changing face of the health market. RAET Health and Welfare has recently realigned its services and products to be in a better position to sell to its market. RAET Hospital Information Systems is developing a new system to be completed in 1992.
- RAET Agriculture addresses automation in the agriculture sector.
- ACI International - the Automation Center realised a net turnover of DFL 123 million; approximately 50% of this turnover can be attributed to business solutions. Of special interest is the pay-roll package, which is in increasing demand following the German reunification.

### **Information Processing and Network Facilities**

RAET information processing and network facilities answers a growing demand for external management of computer centres and for facilities to undertake different automation tasks and communication activities.

In the facilities management market, RAET has a reputation as an established vendor in the Netherlands, with a market position to match. Automation Center has been active in facilities management since 1959.

The companies operating in this sector are:

- RAET Information Processing, which up until January 1992 was an in-house service centre supporting other RAET companies by providing network and computer facilities. The company is now acting as an independent supplier of facilities management and value-added network services.
- ACI International - apart from business solutions, Automation Center offers services and facilities for information processing and networks.

### **Automation Projects and Consultancy**

This activity sector is targeted specifically at international companies and organisations and also central public institutions. The sector operates on the basis of account management. Clients are offered software projects and services complemented by services and products of other RAET companies.

Much attention is paid to the quality and application of new developments. There are specialised units for banking and insurance companies and for central government institutions, with a special emphasis on information technology for users of DEC VAX and IBM AS/400.

The companies operating in this sector are:

- RAET Integration Services, which provides software services to targeted industry sectors.
- RAET Consultancy, which offers supporting services for RAET Integration Services, such as specialised courses for systems development and project management.

### **Office Automation**

Office automation supplies the widest possible range of services and products to automate the office. RAET offers a complete package, including logistics management and technical maintenance. On an international level, RAET has joined other suppliers in the International Computer Group, which is aimed at improving the service level for companies that operate internationally.

The company operating in this sector is RAET Systems and Services.

All of the companies within the core activity sectors offer training facilities for their own products and markets.

**Financial  
Information**
**Exhibit C**
**FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (DFL MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	181	260	367	477	601
Annual Growth Rate (%)	20	44	41	30	26
Profit before Taxes	7	10	27	31	19
Annual Growth Rate (%)	16	43	170	15	(39)
Profit after Taxes	-	9	20	26	0.4
Annual Growth Rate (%)	-	-	122	30	(98)

**Market Analysis**
**Exhibit D**
**1991 MARKET ANALYSIS BY RAET-DEFINED BUSINESS ACTIVITY  
(DFL MILLIONS)**

ACTIVITY	REVENUES	PERCENT
Business Solutions	321	53
Information Processing & Network Facilities	120	20
Automation Projects and Consultancy	124	21
Office Automation	129	21
Other Activities	9	1
Internal Sales	(102)	(16)
<b>TOTAL</b>	<b>601</b>	<b>100</b>

## Exhibit E

**1991 MARKET ANALYSIS BY INPUT SERVICE MODE  
SOFTWARE AND SERVICES (DFL MILLIONS)**

INPUT SERVICE MODE	REVENUE*	PERCENT
Processing Services	92	33
Network Services	14	5
Software Products	42	15
Professional Services	101	36
Systems Integration	14	5
Systems Operations	17	6
<b>TOTAL</b>	<b>280</b>	<b>100</b>

\* INPUT estimate of software and service revenues

## Exhibit F

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	38	14
Process Manufacturing	25	9
Transportation	6	2
Utilities	14	5
Telecommunications	9	3
Retail Distribution	6	2
Wholesale Distribution	14	5
Banking and Finance	39	14
Insurance	11	4
Health Care	39	14
Education	9	3
Local Government	39	14
National Government	11	4
Business Services	17	6
- Other	3	1
<b>TOTAL</b>	<b>280</b>	<b>100</b>

\* INPUT estimates

## Company Strategies

### (a) Company Direction

The basis of RAET's strategy is to secure continuity in its relationship with clients and to strengthen and expand strategic market positions that were achieved in the past.

RAET has reacted to the pressures felt in the Dutch market by implementing a plan for the company, which it has named Focus '92. Concentration on core activities is one of the policies laid down in Focus '92, and as a result, decentralisation in the company will be speeded up.

Various staff functions at the head office will be relocated in different operating companies. Further delegation of tasks and authority to the operating companies has been fine-tuned.

The activities of the RAET Training Institute will be divided amongst the operating companies. Accordingly, RAET hopes to achieve a more targeted training service. Minority participations, grouped together in RAET Participations, will be disposed of. With a view to reducing costs, the organisational structure will be simplified where and whenever possible, and all organisational units will be assessed on the effectiveness of their performance.

The policy aimed at internationalisation will be continued. The activities of Automation Center, the International Computer Group and Tietotekdas fit extremely well with RAET's activities and offer possibilities for joint projects in the international market.

#### **(b) Conclusions**

In 1991, growth of the Dutch IT market slowed down. Most obvious was the reduced demand for hardware and, to a lesser extent, for software and services. Diminished growth went hand-in-hand with a further segmentation of the market and a stiffening of competition. With these market developments in mind, RAET launched its plan Focus '92, aimed at a further concentration on the company's four core activities and at a reduction of the company's overall level of costs.

RAET's turnover increased to DFL 601 million. In the Netherlands, RAET realised a modest growth, whilst abroad a much higher turnover was achieved based on Automation Center's healthy performance. Otherwise, the 26% turnover growth was predominantly realised through consolidation of acquisitions.

Net profit fell drastically to DFL 0.4 million from the 1990 figure of DFL 26 million. RAET attributes this decrease to the cost of implementing Focus '92. The disposal and divestiture of a number of participations in the company took extraordinary expenses of DFL 14.7 million after taxes. The company was also hit by the stagnation of the hardware market, with volume of activities for RAET Systems and Services adversely influenced.

RAET expects that the implementation of Focus '92 will lead to improvement of the company's results in 1992 and to a reduction of extraordinary income and expenses and, thus, to an improvement of net profit.

**Strategic  
Assessment**

RAET has recognised the need to align its products and services with those required by its customers. The structural changes in the needs of organisations, the effects of a reduced demand in hardware and further segmentation in the market-place have led to the company's increased focus on developing its market specialties.

It is too early at this stage to say if the implementation of Focus '92, with its policies of market orientation, cost reduction and internationalisation, will be as effective as the company expects and improve 1992 results.

Certainly, the company is moving in the right direction, monitoring its client requirements and putting emphasis on strengthening its position in strategic markets. Together they offer a wide and effective base for RAET's future development.



## COMPANY PROFILE

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### REUTERS HOLDINGS PLC

#### U.K.

85 Fleet Street  
London EC4P 4AJ  
Tel: 44 1 250 1122  
Fax: 44 1 324 5874

Chairman: Sir Christopher Hogg  
Managing Director and Chief Executive: Peter Job  
Status: Public  
Number of Employees: 10,335  
Revenue (FYE 31-12-91): £1.46 billion

#### France

101 Rue Reaumur  
75080 Paris Cedex 01  
Tel: 33 1 42 21 50 00  
Fax: 33 1 40 26 67 75

#### Germany

Postfach 170465  
D-6000 Frankfurt/Main 17  
Tel: 49 611 71060  
Fax: 49 611 7106120

#### Switzerland

Case Postale 436  
1211 Geneva 6  
Tel. No.: +41 22 735 5566  
Fax No.: +41 22 860462

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### The Company

Reuters is the world's leading electronic publisher. It supplies the global business community and news media with a wide range of facilities including real-time financial data and transaction services, access to numeric and textual historical databases, news and news pictures. Reuters has a controlling interest in Visnews, the international television news agency, and Reuter group companies design and install trading room systems.

Reuters obtains information from around 186 stock exchanges and over-the-counter markets round the world and from a network of some 1,200 journalists, photographers and cameramen. Reuters distributes information through approximately 205,000 connections to its worldwide network, including video terminals, teleprinters and direct feeds to clients' computers.

Reuters has 10,335 employees in 118 bureaus around the world.

**Organisational  
Structure**

Reuters services fall into three categories:

- Information products
- Transaction products
- Media products.

Reuters manages its business in three geographic areas:

- Reuters Europe, Middle East and Africa
- Reuters Asia
- Reuters America.

The principal shareholders are shown in Exhibit A.

**Exhibit A**

SHAREHOLDERS	
SHAREHOLDERS	% OWNED
ABU DHABI INVESTMENT AUTHORITY	7.0
DAILY MAIL AND GENERAL TRUST PLC	6.4
PRUDENTIAL CORPORATION	4.2
OTHERS	82.4

Reuters has 14 main subsidiaries, which are shown in Exhibit B.

# Exhibit B

## SUBSIDIARIES

NAME OF SUBSIDIARY	COUNTRY	% OWNED
Reuters America	U.S.	100
Reuters Services SARL	France	"
Reuters AG	Germany	"
Reuters Australia Pty Ltd	Australia	"
Reuters Hong Kong Ltd	Cook Islands	"
Reuters Italia S.P.A	Italy	"
Reuters Japan Kabushiki Kaisha	Japan	"
Reuters Limited	U.K.	99.9
Reuters South East Asia Ltd	Cook Islands	100
Reuters SA	Switzerland	"
Reuters Singapore Pte Ltd	Singapore	"
Reuters (Europe) SA	Switzerland	100
Instinet Corporation	U.S.	"
Visnews Ltd	U.K.	51

# Exhibit C

## KEY EXECUTIVES

Christopher Hogg	Chairman
Peter Job	MD and Chief Executive
Robert Rowley	Finance Director & Company Secretary
David Ure	Executive Director
Andre Villeneuve	Executive Director
Mark Wood	Executive Director and Editor-in-Chief

**Acquisition  
History**

Reuters has made a number of acquisitions since it was floated as a public company in 1984.

**1985:**

- Acquired Rich Inc. of Chicago, designer and supplier of communication systems for financial trading rooms.
- Acquired a 7% interest in Instinet, which operates a computerised share trading system. In November acquired another 42%.
- Acquired control of Visnews Ltd., an international television news film agency, raising its stake in the company from 33% to 55%.

**1986:**

- Acquired the Finance Division of Hovland Business Systems Ltd., which developed software for the Reuter Position Keeping Service.
- Acquired L.H.W. Wyatt Brothers Ltd., a U.K.-based supplier of voice communication products for financial dealing rooms.
- Acquired two companies serving the U.S. Securities market. One is Network Utilities Inc. of Chicago. The second is Reveal Software Inc., of New York.
- Acquired Finsbury Data Services Ltd. of the U.K., operator of historical databases used by financial and related markets.

**1987:**

- Acquired Securities Clearing International Corp., a North American operator of INSTANT-LINK, a real-time global communications system.
- Acquired IP Sharp Ltd of Toronto, a leading time-sharing networks and database company, specialising in finance, economics, energy and aviation.
- Acquired the remaining 51% of Instinet.

**1988:**

- Acquired a further 33.75% interest in Visnews, bringing its total shareholding to 88.75%.
- Acquired a 48.8% interest in Australian Associated Press Pty Ltd. (AAP).

- Sold 37.75% of Visnews to the National Broadcasting Company of the U.S. The Reuter holding is reduced to 51%.

#### 1990:

- Acquired Uplink Ltd. a specialised Satellite Service Operator (SSSO) licensed by the U.K. to provide from the U.K. one-way point to multipoint satellite services within Europe.

#### 1992:

- Acquired a 35% stake in the French software house, Effix Systèmes SA, a supplier of software in the Reuter product line for dealing room information management.
- Acquired 37.75% of Visnews from NBC, as part of a 10-year partnership agreement. Reuters also agrees in principle to buy the remaining 11.25% from the British Broadcasting Corporation (BBC).
- Reuters subsidiary Instinet acquires Bomar Securities of New York. Instinet will market Bomar's products as Instinet Analytics.

### Key Products and Services

#### (i) Technology

Reuters has always laid great stress on using the most efficient and technically advanced facilities available to build the infrastructure for all its services. The Company operates the most extensive international private leased communications network in the world. More than 130 countries access the network.

During 1991, Reuters spent £67.3 million on development, an increase of 8.9% on 1990. Reuters realises that to provide value-added services and thus retain its market share, investment in new development is crucial.

In 1991 development spending continued on network and product enhancements, including the upgrade of the Reuter Terminal and a range of analytics packages for the equities and money market sectors.

#### (ii) Products and Services

Reuters' services are focused in three main product areas:

1) **Information products** provide information about and for the world's money, capital, equity, commodity and energy markets. This information is packaged for the use of executives outside as well as within the

financial industry. Within this product area are products that add value to information by enabling clients to analyse it in customised formats.

Key products are:

- Equities 2000 - a real-time stock market quotation service
- Commodities 2000 - a real-time commodities quotation service
- Energy 2000 - a package covering the physical and futures market for the oil industry
- Treasury 2000 - an information service for money and capital markets
- Reuters Textline - a business information database.

Other information-handling products include terminals and communications systems for trading rooms. These address customers' needs to handle large amounts of data from many sources in a cost-effective manner to analyse information more rapidly and effectively and, in some cases, to gain access to information at any number of workstations.

Key products are:

- Reuter Terminal - a standard key station for information services
- Networked Reuter Terminal
- Triarch 2000 - advanced digital information delivery network.

**2) Transaction Products** aim to help traders, dealers and brokers active in foreign exchange, stocks, bonds, futures and options to trade with counterparties through Reuters communications and trading networks. They are designed to be fast, reliable and confidential.

The Reuters products and services in this category are categorised as follows:

- Foreign Exchange and Financial Instruments:
  - Dealing 2000 Phase 1
  - Globex 2000 Phase 2
  - Monitor Dealing
- Equities:
  - Instinet.

**3) Media Products.** Reuters supplies newspapers, magazines and broadcasters with news, news graphics, news pictures and television newsfilm. Its network of staff, reporters, editors and photographers are supported by part-time reporters, photographers and cameramen working in almost every country in the world.

## Financial Information

### Exhibit D

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS\*)

YEAR	1987	1988	1989	1990	1991
Revenue	867	1,003	1,187	1,369	1,467
Annual Growth Rate (%)	40%	16%	18%	15%	7%
Profit before Taxes	179	215	283	320.1	340.3
Profit after Taxes	110	134	181	208.4	229.7
Net Profit (%)	13%	13%	15%	15%	16%
EPS	26.0p	32.1p	43.6p	49.5p	54.7p

\* exchange rate: £1 = U.S.\$1.87

## Market Analysis

## Exhibit E

**1991 MARKET ANALYSIS BY GEOGRAPHIC AREA AND PRODUCT ANALYSIS\***  
(£ MILLIONS)

GEOGRAPHIC AREA	REVENUE	PERCENT
Europe, Middle East, Africa	899.6	61.3
Asia/Pacific	279.2	19.0
The Americas	228.4	15.6
Visnews	59.4	4.1
<b>TOTAL</b>	<b>1,466.6</b>	<b>100</b>

*Intergroup sales accounted for £11.0 million.*

*\*As reported by Reuters*

NOTE: The worldwide operations of 51% owned subsidiary, Visnews Ltd., have been shown separately since it operates under independent management.

## Exhibit F

**1991 MARKET ANALYSIS BY PRODUCT GROUP (£ MILLIONS)**

PRODUCTS GROUP	REVENUE*	PERCENT
Information Products	1,126.9	76.8
Transaction Products	237.4	16.2
Media Products	102.3	7.0
<b>TOTAL EXTERNAL SALES</b>	<b>1,466.6</b>	<b>100</b>

\*Source: Reuters

## Exhibit G

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
WESTERN EUROPE (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Network Services	1,160	77
Turnkey Systems	150	10
Software Products	75	5
Professional Services	120	8
<b>TOTAL</b>	<b>1,505</b>	<b>100</b>

\*INPUT estimates (excluding media products)

## Exhibit H

**1991 MARKET ANALYSIS BY EUROPEAN COUNTRY (\$ MILLIONS)**

COUNTRY	REVENUE*	PERCENT
FRANCE	286	19
GERMANY	301	20
ITALY	135	9
U.K.	451	30
DENMARK	15	1
FINLAND	11	<1
NORWAY	15	1
SWEDEN	45	3
BELGIUM	30	2
NETHERLANDS	45	3
AUSTRIA	15	1
SPAIN	53	4
SWITZERLAND	75	5
GREECE	5	<1
IRELAND	15	1
PORTUGAL	8	<1
<b>TOTAL WESTERN EUROPE</b>	<b>1,505</b>	<b>100</b>

\*INPUT estimates

**Company  
Strategies****(a) Company Direction:**

Reuters strategy remains centred on introducing added value in information services and on developing new transaction facilities for financial markets. The company is concentrating on quality, measured against exacting performance standards.

Reuters main product and technology objectives are:

- To provide all financial markets with the broadest, most accurate and integrated package of market information available; to make this package as easy to use as possible; and to deliver it as rapidly as possible.
- To provide a technological platform which delivers information speedily and allows clients to use and analyse it.
- To enhance the ability of dealers to do business with other subscribers over Reuter networks.
- To help dealers process and analyse the flood of information from Reuter and other sources.

Problems in the financial markets mean that the company is expecting lower revenue growth in 1992. To fortify its long-term market position, the company is concentrating on making its price structure more effective against competition, improving its product line and data quality and providing better customer services.

**Strengths**

Reuters' strength lies in its sheer size and geographic presence. Its information network spans some 130 countries and it has employees in 25 countries.

The flotation of Reuters as a public company in 1984 raised about £52 million of new capital, after payment of costs, which became available to finance future growth. The growth of profits has enabled the company to widen its range of business products and earn the position as an international market leader.

The company's commitment to development has resulted in a constantly developing communications network and a reputation for continuous technological innovation.

Reuters knowledge of and expertise in providing services to the financial markets is extensive to say the least. Throughout its history, the company has made a number of strategic acquisitions, and formed many alliances with other organisations, all designed to expand its service offerings both technically and geographically.

Reuters main market lies in the financial arena and the company is somewhat dependent on its client base here for the majority of its revenue. The reliance on these markets is currently affecting revenue growth and will continue to do so until such time as there is an improvement in volumes of trade. This looks unlikely to happen until the economic climate improves.

### **(b) Conclusions**

Reuters is determined to increase its product and service efficiency despite difficult market conditions.

The recession has stifled activity in many financial markets upon which the company depends for growth. A fall in orders in 1991 led the company to rationalise its business and reduce its workforce through redundancies and natural wastage from 10,810 to 10,335 worldwide.

The company did achieve revenue growth (7%) and profit growth (6%) in 1991, but expects slower growth in 1992.

In 1992, Reuters has taken a number of active measures to increase the level of new orders. These include packaging of new facilities into existing services free of charge where previously they would have been sold for an extra fee. The company is also manufacturing price stability, and in a few cases decreasing prices, to make products more competitive.

Reuters's two new products, the foreign exchange matching system, Dealing 2000 Phase 2, and the GLOBEX financial futures matching system, are proving themselves technically, but it is too early to gauge the extent and timing of their contribution to the company's revenue.

The main challenge facing Reuters, in the present economic climate, is retaining revenue growth in a market that continues to see turbulent business activity and expects little improvement throughout 1992.



## COMPANY PROFILE

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### **SEMA GROUP SA**

16 rue Barbes  
92126 Montrouge Cedex  
France  
Tel.: 33 1 46 57 13 00  
Fax: 33 1 46 56 96 53

Chairman: A. Barrera de Irmo  
Managing Director: P.S.E. Bonelli  
Status: Public  
Number of Employees: 7,500  
Revenue (FYE 31-12-91): £412 Million

### **SEMA GROUP plc**

Regal House  
14 James Street  
London WC2E 8BT  
United Kingdom  
Tel.: 44 71 379 4711  
Fax: 44 71 240 6778

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### **The Company**

Sema Group resulted from a merger in 1988 of the French services company Sema Metra and the U.K.-based CAP Group Plc. Both companies had been in operation for 25 years.

The company has a strong heritage in professional services, carrying out large bespoke systems development projects across a range of industries. The company has strengths in project management and systems development methodologies.

Traditionally the company has avoided applications software products but, in recent years, has been attracted to acquire applications software product vendors by both the market growth in this area and the demand for a strong product base to fuel systems integration activity.

The company has a strong position in the defence sector through BAe Sema, together with retail banking and the manufacturing sector. BAe Sema is a joint venture with British Aerospace, formed in 1991, incorporating Sema's YARD subsidiary.

Overall, Sema Group can be expected to continue to place considerable emphasis on:

- Strengthening its position in software development methodologies both for marketing to clients and in support of the company's own systems integration activity
- Extending the company's European penetration in its chosen sectors: manufacturing and retail banking
- Bringing its German operations into profit

### Organisational Structure

Sema Group is a public company listed on the London International Stock Exchange and Paris Bourse.

As of December 1991, the major shareholders were:

#### Exhibit A

##### SHAREHOLDERS

NAME	PERCENT OWNED
Compagnie Financière de Paribas and related companies	39.06
CAP Gemini Sogeti SA	28.24
Schneider SA	10.52
CINVEN Limited	6.79
Credit Agricole and related companies	4.52
Others	10.87

Sema Group is present in the major markets in Europe and in America and on the Pacific Rim.

## Exhibit B

## SUBSIDIARIES

NAME	COUNTRY	% OWNED
Sema Group SA	France	99.06
Sema Group Asia Pacific Pte Limited	Singapore	100.00
Sema Group U.K. Limited	U.K.	100.00

## Exhibit C

## INDIRECT SUBSIDIARIES

NAME	COUNTRY	% OWNED
Abacus SARL	Italy	100.00
Sema Group Systems AG	Germany	56.73
Baddeley Associates Ltd.	U.K.	100.00
Emnid-Institut GmbH and Co. KG	Germany	71.00
Gecom SA	France	100.00
Panther Systems Limited	U.K.	100.00
Sema Group Belgium SA	Belgium	100.00
Sema Group Facilities Management plc	U.K.	100.00
Sema Group GmbH	Germany	90.00
Sema Group Informatica BV	Netherlands	100.00
BAe Sema	U.K.	50.00
Sema Group SAE	Spain	93.33
Sema Group Suisse SA	Switzerland	80.50
Sema Group Systems Limited	U.K.	100.00
Sobemap Marketing SA	Belgium	100.00
Sofemasa SAE	Spain	93.33
Sofres SA	France	100.00
Somibel SA	Belgium	100.00
Tibet SA	France	49.00
Uniciels SA	France	100.00

## Exhibit D

## ASSOCIATED SUBSIDIARIES

NAME	COUNTRY	% OWNED
Aerosystems International Ltd.	U.K.	50.0
Axone	France	22.8
Competence Centre Informatik GmbH	Germany	32.5
Continuity Planning		
Recovery Services Ltd.	U.K.	50.0
Dowty-Sema Ltd.	U.K.	50.0
SG 2 Baleares SA	Spain	49.0

Sema Group employed 7,450 people on average during 1991.

## Exhibit E

## 1991 EMPLOYEE ANALYSIS

COUNTRY	NUMBER OF EMPLOYEES
France	2,420
United Kingdom	3,129
Germany	556
Spain	790
Belgium	390
Netherlands	110
Other	55
<b>TOTAL</b>	<b>7,450</b>

Exhibits F and G show the divisional structures adopted by the Sema Group in France and the United Kingdom.

## Exhibit F

## SEMA GROUP

Business Systems	-	
	-	Consultancy
Tibet	-	
	-	Technical Systems
Uniciels	-	
	-	Axone
Energy	-	
	-	Sema Selection
Telecommunications	-	
	-	Scientific, Space and Defence
MMT	-	

The activities of some of these organisations are as follows:

- |  |  |
|--|--|
| Tibet  | - a supplier of front- and back-office applications software products for the financial sectors dealing activities |
| MMT  | - specialises in computer-based marketing models for the pharmaceutical industry                                   |
| Axone  | - a systems operations joint venture with IBM and Paribas  |
| BAe Sema<br>(inc. YARD)                              | - engineering consultancy with expertise in defence, power generation, oil and gas, and transportation             |
| BAe Sema<br>(inc. Software<br>Systems)               | - software engineering tools   |
| Dowty Sema<br>(now<br>incorporated<br>into BAe Sema) | - a joint-venture company holding prime contracts for Royal Navy submarine and surface ship command systems        |

## Exhibit G

## SEMA GROUP U.K. LIMITED

Communications Systems	-	
Facilities Management	-	
		- Financial
Consulting	-	
		- YARD (now incorporated under BAe Sema)
BAe Sema (YARD & Software Systems)	-	
		- Information Consulting
Commerce & Industry	-	
Aerosystems International	-	

**Recent Acquisitions**

In January 1990, Sema Group acquired control of ADV/Orga, Germany for \$11 million. ADV/Orga had recently produced some bad financial results, losing \$5 million on a turnover of \$47 million. The former majority shareholder, Commerzbank, retained a minority interest. ADV/Orga has now been renamed Sema Group Systems AG.

In February 1990, Sema Group paid \$8.5 million to acquire a 49% stake in Tibet SA, a company set up by the French stock exchange to develop front- and back-office systems.

In September 1990, Panther Systems Limited, U.K., was acquired and became a wholly owned subsidiary.

In December 1990, Sema Group acquired 71% of Emnid-Institut GmbH and Co. HG in Germany.

In 1991, Sema Group acquired Swiss company Qualitique, a supplier of financial software.

### Recent Major Projects

- Selected to design and develop operational management systems for the Olympic Games in Barcelona. This was followed by the award of a further contract for the facilities management of all the computer installations for the Games.
- Chosen by the French Navy to develop the training simulators for their new generation nuclear submarine "Le Triomphant".
- Following on from the contract with Electricité de France to build the control room systems for their N4 plants, Sema Group was awarded a feasibility study and development work on the command and control systems for the first two N4 sites at Chooz.
- With the introduction of the new European accounting rules for banks, Sema Group's specially developed software solution is supporting a number of companies, including BFCE, Paribas, La Hénin and Sovac.
- Sema Group's core software is at the centre of a new information system developed for the IT group of the Paris area saving banks (GIRETRICE).
- Sema Group is providing management assistance for the planned "Bibliothèque de France", with an information systems strategy and consultancy support throughout the systems implementation phase.
- Work with the Civil Aviation Authority has continued with the National Air Traffic Flow Management System and the installation of a major information management system.
- The I-Linie package was supplied both to BMW and the BMW-Rolls Royce aero-engine manufacturing company.
- With the award of the North West Thames Regional Health Authority facilities management contract, Sema Group's responsibilities for regional and district computing rose to cover 226 hospitals and some 6,500,000 patients.

**Financial  
Information****Exhibit H**

Exhibit H provides a financial summary for Sema Group and Exhibit I provides the company's key financial ratios.

**FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)**

YEAR	1987*	1988	1989	1990	1991
Revenues	78.7	266	293	375	412
Annual Growth Rate (%)	55	135	10	28	10
Profit before Taxes	5.8	12.9	17.5	15.3	14.0
Annual Growth Rate (%)	115	57	35	-12	-8
Profit after Taxes	3.6	5.0	10.9	10.4	10.6
Annual Growth Rate (%)	125	61	118	-5	2
Earnings per Share	10.4p	8.4p	11.6p	10.5	11

\* 1987 year ended 30-4

The 10% growth in 1991 was mostly organic.

**Exhibit I****KEY FINANCIAL RATIOS**

YEAR	1987*	1988	1989	1990	1991
Revenue per Employee (£000s)	-	-	-	49.9	55.4
Profit per employee (£000s)	-	-	-	2.2	1.9
Return on Sales (%)	7.4	4.8	5.8	4.4	3.4
Return on Capital Employed (%)	21.6	19.2	19.9	19.9	-

\* 1987 year ended 30-4

**Market Analysis**

Exhibit J provides a breakdown of Sema Group's revenues by country.

**Exhibit J****1991 MARKET ANALYSIS BY GEOGRAPHIC AREA (£ MILLIONS)**

COUNTRY	REVENUE	PERCENT
France	169	41.0
U.K.	144	35.0
Germany	31	7.5
Spain	31	7.5
Belgium	23	5.5
Netherlands	6	1.5
Other	8	2.0
<b>TOTAL</b>	<b>412</b>	<b>100.0</b>

Sema Group's principal strength continues to reside in France and the United Kingdom.

Exhibit K shows the breakdown of Sema Group's revenues by industry sector.

**Exhibit K****1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
(SEMA GROUP DEFINITIONS) (£ MILLIONS)**

INDUSTRY SECTOR	REVENUE	PERCENT
Transportation	29	7
Services	33	8
Energy	41	10
Public Sector	49	12
Communications	29	7
Defence	74	18
Industry	78	19
Finance	78	19
<b>TOTAL (Rounded)</b>	<b>412</b>	<b>100</b>

The company's largest and most international sectors are finance, industry and defence. Sema Group also has specialist businesses in the public sector communications, transportation and leisure, energy and the service industries.

Exhibits L and M indicate the breakdown of Sema Group's total revenues by service type and delivery mode.

#### Exhibit L

##### 1991 MARKET ANALYSIS BY SECTOR (£ MILLIONS)

ACTIVITY	REVENUE	PERCENT
Products	37	9.0
Market Research	43	10.5
Facilities Management	60	14.5
Consultancy	29	7.0
Business Systems	243	59.0
<b>TOTAL</b>	<b>412</b>	<b>100.0</b>

Source: Sema Group

#### Exhibit M

##### 1991 MARKET ANALYSIS BY INPUT DELIVERY MODE EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)

INPUT SERVICE MODE	REVENUES*	PERCENT
Applications Software Products	20	3
Systems Software Products	30	4
Professional Services	330	48
Systems Operations	135	19
Systems Integration	150	21
Turnkey Systems	35	5
<b>TOTAL</b>	<b>700</b>	<b>100</b>

\* INPUT estimates

Sema Group's emphasis remains on professional services. However, the company is keen to extend its market share in systems integration and systems operations.

In the U.K., the systems operations activities are carried out in the main by the facilities management division. Major contracts include Varsity Corporation, Greater Glasgow Health Board and British Steel Service Centres.

Hardware platforms managed include:

- IBM 3090
- IBM 4361
- DEC
- ICL

Sema Group also has a joint venture with IBM in France offering disaster recovery and systems operations, called Axone.

Axone concentrates on platform operations and transition management rather than application operations and has been growing rapidly with a strategy aimed at aggressively reducing the cost of platform operations.

In 1992, Sema Group will concentrate on obtaining revenues derived from large systems integration projects and widening its focus on industry sectors outside its traditional markets.

In 1991, Sema saw revenues in the energy, transportation, communications and defence sectors increase while revenues from industry and banking decreased.

## Strategic Analysis

### (a) Company Direction

Sema Group is one of the leading European professional services vendors, formed from the merger of Sema Metra and the CAP Group.

The company's current strategy is to expand by improving its geographic coverage, strengthening its industry-specific capability, and adding to its portfolio of software products.

#### (i) Partnerships

Sema's strategic objective in 1991 was to increase revenues from systems integration. Unlike many of the leading systems integrators that perceive partnerships, rather than ownership, as the more flexible means of access to software products, Sema Group has had deliberate policy to increase the proportion of its revenues generated by software products.

To implement this policy, Sema Group decided to specialise in:

- Industrial applications and computer-integrated manufacturing
- Retail banking
- Computer-aided software engineering (CASE)

In 1990, the company acquired ADV/Orga, a developer of applications software products for the manufacturing sector. ADV/Orga, now called Sema Systems AG, has 1,000 installations spread over 300 clients within Germany. The company sustained significant losses in 1991 and Sema is now looking for a partner.

Sema Group also acquired a controlling interest in Tibet SA, a company providing services to the members of the Paris stock exchange. Tibet is primarily a developer of back-office systems whose products Sema Group will be seeking to market extensively in the rest of Europe.

Sema Group's major partnerships include:

- Its systems operations joint venture with IBM in France
- Its support of IBM in the manufacturing sector in France
- A 50/50 joint venture between British Aerospace (military aircraft) Ltd. and Sema Group's Scientific and YARD divisions to form BAe Sema to exploit the civil and defence market-place

This agreement was established in August 1991 and replaces BAe's former agreement with SD-Scicon.

#### *(ii) Consultancy*

The mission of the consultancy arm within Sema Group is to bridge the gap between the needs and opportunities of businesses and the benefits available from technology. The company has its own methodologies, "MasterStrategy" and "MasterPlanning", which are used to develop a strategic approach that expands into a detailed systems plan providing an overall information architecture.

However, despite the overall emphasis of Sema Group's consultants on the development of IS strategies, the company also has some wider consultancy expertise, for example:

- Its involvement with the World Bank in developing national restructuring plans.
- The development of product strategies in areas such as electronics and banking through its Consultronique subsidiary.

- The engineering and scientific skills within BAe Sema (formerly YARD). BAe Sema is established in the defence, power generation, and oil and gas sectors and is developing its activities in the transportation sector.
- Assistance with staff communication strategies and the introduction of new technology through its consultancy division.

However, Sema Group appears to lack a coherent consultancy group appropriate for assisting senior executives across a wide range of industries with business re-engineering as a precursor to the re-orientation of IS.

### *(iii) Geographic Coverage*

As was indicated in Exhibit J, Sema Group only has significant penetration of France and the United Kingdom, though the company has been taking action to expand its presence in both Spain and Germany.

#### *France*

In France, Sema Group has over 2,400 employees and specialises in management consultancy, business software, and scientific and technical systems. Facilities management services in France are provided by Axone, a joint venture with IBM France and Paribas.

As well as a strong presence in and around Paris, Sema Group has a number of offices in the South and West of the country. Tibet, the specialist in stock exchange software, is based in the heart of Paris.

In January 1992, Sema sold Sofres SA, its French market research company.

#### *United Kingdom*

The 3,200 staff employed in the United Kingdom serve all sectors of government and commerce, and the Group is particularly strong in systems integration, consultancy and facilities management. The Birmingham data centre is the international focus for facilities management operations across the U.S. and Europe.

Sema's presence in the defence sector is concentrated in the newly formed joint venture BAe Sema.

The CardPac international product centre is based at Watford.

*Germany*

Sema Group is now endeavouring to establish itself in Germany through Sema Group Systems AG (formerly ADV/Orga AG) and Sema Group GmbH. The company has a presence in the industrial sector - with its I-Linie range of products - as well as in the financial and defence markets. The company has around 500 employees in Germany.

*Spain*

One of the leading information technology services companies in Spain, Sema Group SAE employs 700 staff at sites across the country. Specialising in consultancy and management systems, particularly for the financial sector, Sema Group is also strengthening its position as a supplier of technical software in the defence and industrial markets.

*Belgium*

The Brussels office, with its 400 staff, has been established for over 30 years. Sema Group Belgium is strong in management consultancy, notably in the areas of transportation and project management, and in developing business systems. Brussels is the international centre for EASY accounting software.

*Netherlands*

In the Netherlands, with its 100 employees, Sema Group serves the commerce and industrial markets as well as the finance sector.

*Switzerland*

Established in 1989, Sema Group in Switzerland serves the French-speaking region around Geneva and the German-speaking area around Basle, where a satellite office has recently been opened.

In 1991, Sema increased its presence in Switzerland with the acquisition of Qualitique, software supplier to the financial sector.

**(b) Key Technologies and Skills****(i) Technologies**

Sema Group is essentially a technology-based company, and priority is given to the methods and tools that support the management of large projects and to the encapsulation of the company's experience in certain sectors into reusable software.

Sema Group spent £14 million on research and development in 1991, an increase of 11% over 1990 expenditures.

After a ten-year development programme, Sema Group launched its Concerto software engineering workbench in 1990. Concerto supports real-time design methodologies and is principally used in the defence sector. For example, Concerto was evaluated for use in the Hermes European space shuttle project, and supports the design methodologies used by Sema to develop the command system for the Royal Navy's Type 23 frigate.

1991 was a year of important developments for Principia, Sema's software engineering workbench for business applications, with the launch of a new version Co-operative Principia. Co-operative Principia is an integrated offering that includes a methodology, tools and techniques to support design, documentation and co-operative applications generation for the main environments in the market-place.

Sema Group's research into new methods and tools for software development is centred on the requirements for large administrative systems development. The company is in the process of a thorough review of its approach to large projects in the light of three emerging standards. The first is its *MasterStrategy* and *MasterPlan* methodology for designing information systems. The second is the development of Merise/2, which incorporates data-flow diagrams further up-stream in the design process and the ability to handle co-operative processing applications down-stream. Finally, Sema Group is leading the second phase of the Euro method project, which aims at creating for the Single European Market a common reference model for business system design methodologies.

*(ii) Key Application Products*

Sema Group offers a range of kernel products for applications, including:

CardPac	Credit card processing
I-Linie	Fully integrated general ledger, MRP, payroll and asset management system
Principia	Workbench for business system design and implementation
Seb10	Electronic banking system
CABS	Billing system for mobile or traditional telecommunications operators
EASY	Accounting software package
Pleiades	Human resource management application
Investiciel	A back-office banking system

*(iii) Industry Knowledge*

Sema Group's main expertise lies in the banking and finance sector, followed by:

- Defence
- Industry
- Public sector

**Banking and Finance**

In France, Sema Group was heavily involved in the transformation of the Paris stock exchange through its ownership of Tibet, which supplies systems to the majority of Bourse members. Tibet has been at the centre of the reform process with a range of products designed to support the New Relit System.

In 1991, Tibet gained a number of new clients, including Deutsche Bank, the European Bank of Tokyo and Banque Bruxelles Lambert Intermédiaire.

In the U.K., the company has been heavily involved in the development of treasury dealing systems, including a partnership with Reuters.

Sema Group also has considerable expertise in credit card management and electronic funds transfer. 1991 saw the signing of a contract with Barclays, which is adopting CardPac as the basis for the redevelopment of its company card system.

In Spain, Sema has been working in collaboration with DEC in the development of systems for Banesto and Asesores Bursátiles.

In 1990, the company also formed a division dedicated to the Spanish insurance market.

### Defence

Sema Group is a major international player in defence systems, while the joint venture BAe/Sema (formerly YARD) applies advanced engineering design to equipment, platforms and installations.

Sema Group has an in-depth understanding of defence technologies, ranging from the construction of operating bases for the armed forces through the design of submarines, ships and vehicles and the systems that they carry.

For example, in the United Kingdom, BAe Sema is playing a major role in the Weapons System Integration Authority for the update of the Swiftsure and Trafalgar class submarines.

Another form of technical support given by Sema Group has been the definition of a performance specification for the Royal Navy's new *Merlin* ASW helicopter.

Through its established disciplines of naval architecture and marine engineering, BAe Sema continues to support navies around the world. In 1990, this experience was recognised by the award of a contract through which the naval architecture policy for surface ships and submarines in the Royal Navy will be managed for the next three years.

Sema Group is involved in major naval programmes in Germany, France and the United Kingdom. For DCN in France, the company has a team working on the combat system for the *Charles De Gaulle* nuclear-powered aircraft carrier, while in Germany it continues to support the F123 and the Naval Air Wing C31 system programmes.

The company's principal vehicle for command system development is Dowty-Sema, a joint-venture company, which holds the prime contracts for the Royal Navy's new generation of submarine and surface ship command systems.

Sema Group is a pioneer in real-time information handling using Ada and has advanced software technology for high-speed interactive databases working over a distributed network.

Sema Group's main activity in defence telecommunications is its continuing development of network management, security and encryption systems for the French army's integrated communications network RITTER. The company is also working with Thomson, lead contractor for the French air force's RA90 network, on the definition of the security and encryption system.

In 1990, Sema Group signed its first contract with Alcatel for a major software development programme for the *Syracuse 2* satellite.

In the aerospace sector, Sema Group has been selected by the French National Space Studies Centre as an approved contractor. In Germany, the company is supporting MBB in its development of the orbital phase on-board software for the European space shuttle *Hermes*.

### **Industry**

Sema Group's Industry Division covers the company's activities in the manufacturing and distribution sectors.

In the U.K., Sema Group concentrates on supplying services to clients with ICL-based manufacturing systems. The acquisition of Panther Systems has further strengthened Sema Group in this field, making the company one of the leading suppliers of OMAC and ORMA-related services. In France, Sema Group appears to have a close relationship with IBM and has a partnership with IBM for the installation of their PPS system, which is beginning to replace COPICS in mainframe installations.

Sema Group has traditionally concentrated on large professional services projects within the Industry Division. However, the company believed that its sales were being affected by its lack of applications software products. Accordingly, the company acquired ADV/Orga for access to its I-Linie production management product. At the end of 1991, Sema Group claimed I-Linie had more than 1,000 installations spread over 300 customers. For distribution activities, Sema Group has a warehouse stock location product called CAP-ACITY, installed at 18 sites.

Examples of projects carried out by Sema Group in 1991 include:

United Engineering Steels	-	Strategic order handling and production system
Citroen (Spain)	-	Parts and spares handling system, including customs clearance
BNFL (U.K.)	-	Management and control systems
SOLVAY Dupher (Dutch Solvay Group)	-	Commercial management, production and research and development systems

Sema Group will be seeking to increase the penetration of its I-Linie product, particularly within the United Kingdom and France, and to use this product as a basis for increasing its access to large systems integration projects.

### **Public Sector**

Two of Sema Group's major areas of activity within the public sector in 1991 were public administration and the health sector.

Projects carried out for public administration in 1991 include:

- A feasibility study for the French National Centre for Scientific Research for a central information system
- Development of software for the Paris city administration to control parking situations
- A study of the IT equipment in the Spanish Ministry of Public Administration

In the health sector, the Sema Group is a major systems operations vendor in the United Kingdom, and in 1991 signed a number of new contracts with health authorities.

In Belgium, Sema Group has carried out consultancy assignments covering hospital management, replacement planning for medical equipment and budget forecasting.

Sema Group has also been involved in the development of networks supporting information retrieval projects for the European Commission, and the company's Pleiades human resource management product is becoming well-established within the public sector in France.

**(c) Strengths and Weaknesses**

Sema Group's main strengths are its:

- Professional services capability, and in particular, the company's expertise in managing large bespoke projects
- System development methodology expertise and its development of tools to support these methodologies
- Presence in the retail banking, defence and - to a lesser extent - manufacturing sector
- Product portfolio in support of the company's activities in the retail banking sector
- Presence in France, the United Kingdom and Spain.

The company's major weaknesses include its:

- Lack of overall access to applications software products
- The questionable competitive positioning of its I-Linie product range and the loss-making German operation
- Perception as a technology-based company
- Failure to increase its geographic coverage to keep up with major competitors such as CGS

The company's lack of access to applications software products is exacerbated by its failure to develop a network of partnerships with leading applications software product vendors in the manner adopted by competitors such as CGS and Andersen Consulting. Instead, Sema Group has attempted to improve its product portfolio by acquisition. This is a high-risk strategy with questionable benefits in the systems integration market where access to a range of competing products may be more beneficial than outright ownership of a limited product selection. In the short term, this approach also leaves Sema Group without product offerings across a wide range of systems. While Sema Group's product offerings for the retail banking sector appear to be sound, the competitive positioning and geographic coverage of its I-Linie manufacturing sector product are potential weaknesses in the face of the strong competition from companies such as SAP, IBM and ASK in this sector.

#### **(d) Conclusions**

Sema Group was created in 1988 from Sema Metra and the CAP Group in an endeavour to create a leading European software and services vendor. However, this momentum has not been maintained, and the Sema Group has not continued to build a truly pan-European organisation by merging with or acquiring leading information services vendors elsewhere in Europe. In this respect, Sema Group is in danger of lacking the pan-European systems integration capability being assembled by major competitors such as CGS and the equipment manufacturers. This could limit the company's success with the larger multinational organisations.

Sema Group remains a technically oriented organisation well respected by IS managers. While this is a strength in addressing the professional services market, Sema Group may lack the influence with senior executives necessary to win major systems integration contracts in the commercial sector. However, Sema Group does appear likely to succeed in the defence systems integration market where BAe Sema has a high level of capability.

The company's policy of acquiring applications software products rather than entering into partnership agreements limits the company's flexibility to respond to client wishes and may appear to damage its perceived appropriateness as an objective adviser.

In addition, in an open systems dominated environment, it may be difficult for Sema Group to spend the required sums on product development and promotion to maintain its products amongst the industry leaders. The approach being adopted by companies such as CGS appears more appropriate for addressing the systems integration market.

**(e) Strategic Assessment**

The Sema Group is a key example of the group of European vendors that occupies a position between the pan-European leaders on the one hand and those national vendors content to develop opportunities in their home markets on the other. Its position is further complicated by the significant stake held in it by CGS.

The Sema Group has achieved a strong reputation for its technical expertise in general and its knowledge and experience of software engineering methods and tools in particular. It has developed some strong applications product-based offerings and a number of joint-venture initiatives that provide it with a source of significant revenue opportunities.

## COMPANY PROFILE

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### **SIEMENS NIXDORF INFORMATIONSSYSTEME AG**

Otto-Hahn-Ring 6  
8000 München 83  
Germany  
Tel: 49 89 6 36-0'

President and CEO: Dr. Hans-Dieter Wiedig  
Status: Subsidiary  
Number of employees: 51,180  
Revenue (FYE 30-9-91): DM 12.1 billion

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### **The Company**

In April 1990, Siemens acquired a majority of the common stock of Nixdorf Computer AG and began the merger of its Data and Information Systems Group into its acquisition. On October 1st, 1990 this new unit was renamed Siemens Nixdorf Informationssysteme AG, in which Siemens has a 78% stockholding.

In its first year of trading, Siemens Nixdorf (SNI) reported total revenues of 12.1 billion, a fall of 2% over the aggregate of the previous year. In 1990 Siemens' Data and Information Systems Group had revenues of DM 7.7 billion and for the nine months to end September 1990 Nixdorf Computer had revenues of DM 3.4 billion.

Siemens is a massive conglomerate operating in the electrical and electronics sectors. The Data and Information Systems was one of 15 operating divisions, contributing just 12% of Siemens overall revenues in 1990. Siemens' background lies primarily in equipment manufacturing principally at the mainframe end of the spectrum.

On the other hand, Nixdorf's background is primarily in the supply of turnkey systems based on proprietary minicomputers. During the 1970's and early 1980's, Nixdorf grew rapidly taking advantage of customers' need for solutions rather than just equipment.

However, the company's growth began to slow in 1988 under competition from low cost personal computers and the move to open systems, resulting in considerable losses in 1989 and 1990. Belatedly the company recognised the need to move rapidly to open systems based offerings and to find a partner who could assist in financing this change of direction. The result was the merger of Nixdorf Computer AG with the Data and Information Systems Group of Siemens AG.

However financial problems remain as Siemens Nixdorf Informationssysteme is now faced with similar problems to those encountered by Unisys in merging product lines and migrating clients to new architectures.

## Organisation Structure and Acquisitions

### (a) Organisation Structure

Nixdorf Computer AG and the Data and Information Systems Group of Siemens AG have now been merged to form a single organisation Siemens Nixdorf Informationssysteme. In every country operations have been divided into the following business groups:

- |   |   |
|---|---|
| SNI Organisation -                          | - International   |
| · Business Systems:                         | - Industry, Wholesales, services<br>- Office systems, CASE, CAD   |
| · Business Systems/Special Market Segments: | - Automotive, electrical/electronics,<br>chemical, petrochemical, airline,<br>and manufacturing industries<br><br>- CAE products  |
| · Retail                                    | - Self-service, large/department<br>stores, specialist, service stations,<br>hotel and catering<br><br>- Point of sale, scanners  |
| · Finance and Insurance                     | - Financial institutions, insurance<br>companies, savings and loan<br>associations<br><br>- Branch automation, central<br>applications, optical archiving   |
| · Public Sector/Special Market Segments:    | - Post & telecommunications, rail,<br>defence agencies, European<br>institutions<br><br>- Custom solutions and services   |
| · Public Sector                             | - National regional and local<br>authorities, power utilities, law and<br>order agencies, health/accident and<br>pension insurance, research<br>information and documentation,<br>employment agencies |

- Resellers
  - All sales and marketing partners, delers and agencies
  - Notebook PC's through UNIX systems, office systems
- Special Products and Telecommunications Systems
  - Peripheral/Printing Systems, telecom systems, supercomputers

SNI has the following principal subsidiaries in Germany.

Sietec Systemtechnik GmbH & Co. OHG, Berlin  
 CGK Computer Gesellschaft Konstanz mbH, Constance  
 Siemens Nixdorf Datenverarbeitungssysteme GmbH, Berlin  
 SQL Datenbankssysteme GmbH, Berlin  
 Siemens Nixdorf Microprocessor Engineering GmbH, Berlin  
 Siemens Nixdorf Software Engineering GmbH, Berlin

#### (b) Acquisitions

In 1990 Siemens acquired Calay Systems GmbH, a supplier of computer-aided design software for the electronics sector.

In 1989 Siemens acquired the French equipment manufacturer IN2.

Siemens also acquired Rolm from IBM.

#### Recent Major Projects

- |                                |   |
|--------------------------------|---|
| Labour Exchanges               | - Spain, Germany                            |
| Ticket reservation systems     | - for Dutch, Danish, and Norwegian railways |
| Post office counter automation | - England, Canada, Germany and Norway       |
| Merchandise management systems | - Tescos, Kooperativa Forbundet (Sweden)    |

Banking systems - Nationwide Anglia Building Society,  
Banco Popular and Banco de Sabadell (Spain),  
Jyske Bank (Denmark), Credit Agricole (France)

Self-service banking systems - Deutsche Bank, the Skandinavia  
Enskilda Banken (Sweden),  
Bank of Ireland, Garantibank  
(Turkey)

EFTPOS - Shell (UK)

Factory automation - Quelle mail-order warehouse  
(Germany)

### Key Products and Services

#### (i) Technologies

Nixdorf's principal technological skills lie in PoS equipment where the company offers innovative applications for automation of bank branches and self-service banking.

For the retail sector, Nixdorf offers

- integrated merchandise management systems
- automated self-service machines to enable customers to scan their own purchases.

Other sectors where Nixdorf was successful in 1990 include:

- petrol service stations
- post offices
- hotels
- labour exchanges.

Nixdorf also manufactured PABX systems, and began tests on broadband communications in the hospital sector in 1989. However this is an area of potentially considerable duplication with the R&D efforts of Siemens, which is very active in communications systems and networks.

Siemens has an integrated co-operation agreement with IBM in the field of microelectronics.

## (ii) Industry Knowledge

Although Nixdorf had come under pressure in its markets for general-purpose solutions and the manufacturing sector, the company remains strong in the financial services and retail sectors by virtue of its capabilities in PoS systems.

As a major manufacturer across a range of sectors, Siemens has considerable expertise in serving the manufacturing sector.

## Banking & Finance

Financial institutions form a key market for Nixdorf, contributing some 30 percent to Group revenue. Demand focussed on customer-operated equipment, server systems and personal computers; these systems form the basis for large networks and make application solutions available at the workplace. A typical configuration was ordered by the savings bank organisation in erstwhile East Germany. This master contract encompasses 150 Nixdorf Banking Network Computers, 1,751 workstation systems and more than 800 self-service machines for installation in a comprehensive regional network embracing the five new federal states in the former GDR.

Financial institutions generally are transferring teller services, like cash withdrawals and balance enquiries, to self-service equipment in the bank lobby. The Deutsche Bank, for example, placed an order for Nixdorf Customer Service Centers (CSC) worth DM 35 million. An additional order valued at DM 15 million came from the Garantibank in Turnkey.

Sales to private insurance companies and building societies largely consist of application solutions for their field organisations. This type of application software is being used by customers in five European countries.

## Retail

Sales of standard systems and integrated merchandise management solutions strengthened Nixdorf's position in the retail industry. In Europe, the company estimates that it has a 23 percent share of the PoS terminal market. Business with service stations, where Nixdorf pioneered the use of EFTPOS installations to debit fuel and kiosk sales automatically to customer accounts, was highly productive. Another major user to join the customer base in this sector is Shell Ltd., England.

Several European retail chains opted for test installations using the Nixdorf Scan Tower. This automated self-service machine allows customers to speed up their passage through the checkout by scanning their own purchases.

Nixdorf retail solutions have also triggered demand in Eastern Germany. Under a master agreement, the company is supplying 5,000 personal computers to East German users; several hotels in the new federal states are installing hotel management systems.

### Manufacturing

Siemens is in a position to offer a large proportion of the components required to implement computer-integrated manufacturing since in addition to computer equipment and software the Siemens group also manufactures complementary products for process automation such as programmable controllers, numerical control systems for automating machine tools, and communication networks for interconnecting the various systems.

Clients of Siemens include Audi, BMW, Daimler-Benz, General Motors and VW.

### Government

Nixdorf has also been successful in supplying PoS systems to post offices. In 1990, the Canada Post Corporation placed an order worth DM 50 million for Nixdorf point-of-service systems to automate over-the-counter transactions at post offices throughout the country. Similar installations are already in place in post offices in Germany, Norway and England.

Another of Nixdorf's key accounts in the government sector is the Federal Labor Office. Long-standing cooperation with that organisation has led to orders for installation of Nixdorf systems at local labour exchanges in Eastern Germany to support job counselling and administrative staff. Orders also came from the Bundeswehr and the Federal Office for Commerce and Industry.

### Other

Another traditionally important sector for Nixdorf is car dealerships. Nixdorf provides systems for dealerships which assist them in business management and facilitates communication between automotive manufacturers, their dealerships, and automotive components suppliers.

**(iii) Key Application Products**

Nixdorf has a wide range of industry-specific application software products many of which were originally based on the company's COMET software. However the company came under strong pressure from competitors offering Unix and PC based systems and has retrenched into a number of key sectors.

New run-time environments have also been developed to enable COMET software to be run under the Unix operating system.

Siemens' Data and Information Systems Group has also been putting increasing R&D effort into software development, including considerable investments in application software.

Siemens has agreements with SAP, whose R/2 product is available on Siemens BS2000 mainframes and whose R/3 product is being offered on Siemens Sinix Unix-based computers.

**Financial Information**

Exhibit A shows a two-year financial summary for the company.

**Exhibit A****FIVE YEAR FINANCIAL SUMMARY FOR SIEMENS, DM MILLIONS**

	1986	1987	1988	1989	1990
Revenue	47,023	51,431	59,374	61,128	63,185
Annual Growth Rate (%)	(14)	9	15	3	3
Profit before tax	2,703	2,598	2,475	2,788	2,823
Profit after tax	1,474	1,275	1,391	1,577	1,668
Annual Growth Rate (%)	-	(14)	9	13	6

For 1991, SNI reported total revenues of approximately DM12.1 billion.

**Market  
Information**

Exhibits B to D provide breakdowns of INPUT's estimate of SNI's revenues from software and services in 1990.

Exhibit B provides a breakdown by delivery mode, Exhibit D a breakdown by country, and Exhibit E a breakdown by industry sector.

**Exhibit B**

**SIEMENS NIXDORF INFORMATIONSSYSTEME  
1990 MARKET ANALYSIS BY DELIVERY MODE (\$ MILLIONS)  
INPUT ESTIMATE**

DELIVERY MODE	REVENUE	PERCENT
Software Products	500	30
Professional Services	100	6
Systems Integration	100	6
Turnkey Systems	1,000	58
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

**Exhibit C**

**SIEMENS NIXDORF INFORMATIONSSYSTEME  
1990 MARKET ANALYSIS BY COUNTRY  
WESTERN EUROPE (\$ MILLIONS) INPUT ESTIMATE**

COUNTRY	REVENUE	PERCENT
Germany	1,050	62
France	130	8
Spain	120	7
UK	110	6
Italy	70	4
Netherlands	40	2
Switzerland	40	2
Austria	40	2
Other	100	7
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

## Exhibit D

**SIEMENS NIXDORF INFORMATIONSSYSTEME  
1990 MARKET ANALYSIS BY INDUSTRY SECTOR**

SECTOR	REVENUE* (\$ MILLIONS)	PERCENT
Banking & Finance	500	30
Manufacturing	350	20
Distribution	250	15
Government	250	15
Services	100	5
Other	250	15
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

\*INPUT estimate

### Strategic Analysis

#### (a) Company Direction

Siemens remains committed to a policy of global expansion and is especially enthusiastic about expanding its activities in the U.S.

In the short-term, the Siemens group as a whole is firmly committed to investing considerable resources in the new German states. The company's aim is to secure as solid a market position in this region as it currently commands in the western part of the country. To this end, Siemens decided in 1990 to invest over one billion German marks in the immediate future in eastern Germany and to build up local operations with 25,000 to 30,000 employees.

Siemens is also firmly committed to expanding the international operations of SNI.

The major challenge for SNI is to migrate Nixdorf's large installed base of customers from their proprietary systems onto the company's open systems, which entails manufacturing price-competitive open systems hardware and either developing or acquiring access to leading industry-specific application software products.

Another challenge is to develop line of business organisations utilising the strengths of both Siemens and Nixdorf. For example, the banking and finance sector group needs to be able to target financial institutions with an integrated product range which includes Siemens mainframe and mid-range capabilities and Nixdorf's PoS and communications expertise.

In particular, SNI needs to build up its application portfolio both by developing its own products and, more importantly, by establishing partnerships with leading application software product vendors.

Although roughly 40% of SNI's software and services revenues are derived from sales outside Germany, the company is not a major player in Software and Services outside its home market.

However SNI is keen to improve its geographic coverage and can be expected to acquire companies and enter into partnerships in pursuit of this goal.

In 1990, Siemens licensed Computer Elektronik Dresden GmbH, formerly Robotron, to manufacture the H60 mainframe series, Sinix multiuser computers, and personal computers for sale in East Germany and Eastern Europe.

#### **(b) Strengths and Weaknesses**

SNI offers a comprehensive range of equipment from personal computers to mainframes and is in a strong position in the market for networked multi-station UNIX installations.

The company is very strong in Germany and is well positioned to target the emerging opportunities in East Germany and Eastern Europe. However the company needs to develop its presence in the remainder of Europe.

Siemens is potentially a very strong competitor in factory automation projects, where SNI has a comprehensive portfolio of relevant software products and other divisions of Siemens have expertise in areas such as PLCs and numerically controlled machines.

SNI is also strong in the financial services and retail sectors assisted by Nixdorf's capability in PoS systems for these and related industries.

SNI's major weaknesses are the difficulties of integrating the activities of Siemens and Nixdorf into a single organisation and the need to develop Nixdorf from a proprietary turnkey solutions vendor into a company which can compete strongly in the open systems market.

**(c) Conclusions**

SNI should succeed in maintaining its position as a leading systems integrator in Germany and a second tier player across Europe as a whole.

However the company faces major challenges in merging the data and information systems division of Siemens with Nixdorf and becoming a major player in open systems based solutions. The company's current financial position is also a major cause for concern, though the Siemens Group has the resources to supply the funding necessary to restructure SNI and assist in new product and service development.

In the short-term, SNI will be at its most competitive in the systems integration market in projects involving point-of-sale systems. Within Germany, SNI will also be a force in computer-integrated manufacturing.

**(d) Strategic Assessment - SNI**

SNI holds a key position within the Siemens Group where it is the centrepiece of the company's data and information technology core business strategy. It also holds a very strong position within the German market with considerable potential to strongly penetrate the emerging markets of Eastern Europe.

SNI however faces considerable challenges internally as it struggles to address its high cost structure and the Siemens' bureaucracy. It must at the same time continue to rationalise its product line and enhance its open systems appeal.

SNI is most likely to develop as an internal systems integration subcontractor for the Siemens Group. Siemens itself will develop as a major systems integrator by virtue of its size, diversity and comprehensiveness of its technology skills.



## COMPANY PROFILE

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### **SLIGOS**

3 Place de la Pyramide  
Cedex 49  
92067 Paris La Defense  
France  
Tel.: 33 1 49 00 90 00  
Fax: 33 1 47 73 07 63

Chairman and CEO: Gerard Bauvin  
General Manager: Henri Pascaud  
Status: Public  
Number of Employees: 5,421  
Revenue (FYE 31-12-91): FF 3.21 Billion

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### **The Company**

Sligos is a public company, listed on the Regular (continuous) market of the French Bourse since May 1988.

Sligos was created in 1973 when Sliga, a subsidiary of the Crédit Lyonnais was merged with Cegos Informatique, a consultancy firm involved in the management of data processing.

From the start, the group was highly active in the field of computerised fund transfers, even inventing and registering as a trademark the French term "monetique", which designates the whole sector. A processing centre was set up to service the Carte Bleue payment-card network, and by 1981 the group had introduced the first bank/retailer network-switching system. In 1983, Solaic, the largest plastic-card manufacturer in France, was acquired. Since then, Sligos has been instrumental in all of the sector's major transformations, including interconnecting national and international electronic funds transfer (EFT) networks, launching private-label card services and initiating a new bank-check guarantee service. In parallel, the group forged a leading position in the integration and manufacture of IC card systems.

Taking advantage of the rapid development of videotex communications in the 1980s, Sligos became a major actor in the field. At the same time, the group continued to expand in the complementary sectors of microcomputers and computer engineering, and also started the extension of its services abroad.

In December 1986, 10% of Sligos's capital was introduced on the Paris Bourse's Second Market. By the end of fiscal 1987, the group's 25% average annual growth rate posted since 1982 pushed consolidated revenues up to FF 1.4 billion. In 1988, Sligos acquired a 53.5% stake in CMG, a leading French computer-engineering specialist, and the group generated consolidated sales of more than FF 2 billion.

In May 1988, after a two-for-one stock split, the company's listing was transferred from the Second Market of the Paris stock exchange to the more active monthly-settlement market.

In 1989, Sligos acquired 75% of the capital of Actis GmbH for FF 70.7 million.

In November 1989, The company issued FF 451 million worth of convertible bonds in order to finance its European expansion.

The shareholders of the company as of 31 December 1991 were:

Crédit Lyonnais	58.2%
Caisse des Depots et Consignations	5.8%
Via Banque	6.5%
Public	29.5%

Since 1989 Sligos has concentrated its development outside of France - in Germany, Spain, Italy and the United Kingdom. The company now employs 1,600 people in these countries, which accounted for approximately 15% of overall turnover in 1991.

Foreign sales to date have been generated largely by Sligos expertise in the electronic fund transfer sector. Recent international projects include consulting, system engineering, integration of smart card technology into existing networks, and supply of plastic cards in Europe, the Middle East and Africa.

The executive management of the company comprises:

- Chairman and CEO: Gerard Bauvin
- General Manager: Henri Pascaud
- Deputy General Manager: Gerard Delputte
- Chief Financial and Administrative Officer: Frederic Brunet
- International Manager: François Dutray

In 1991, revenues reached FF 3.2 billion and net profit FF 171 million.

As of 31 December 1991, the capital of the company was FF 119,248,425, representing 4,769,937 shares.

## Organisational Structure

Exhibit A shows the organisational structure of Sligos and lists its major subsidiaries and shareholdings.

### Exhibit A

#### MAIN SUBSIDIARIES AND SHAREHOLDING (ON 31 DECEMBER 1991)

SLIGOS				
PROFESSIONAL SERVICES	BANKING AND CARD PROCESSING SERVICES AND VALUE-ADDED SERVICES	PAYMENT MEDIA	MICRO COMPUTING	SOLUTIONS FOR CHARTERED ACCOUNTANTS AND SMALL AND MEDIUM-SIZED BUSINESSES
SLIGOS CMG INDUSTRIE 100%	PENELOPE 95%	SOLAIC 100%	CMG 100%	MANAGIX 100%
MAINTEC 100%	MONEMAG 57.5%	SATI 100%		
PINK E FRANCE 100%	SERTECH 100%	CIDEL 100%		
ACTIS GERMANY 75%	NEXUS GREAT BRITAIN 51%	SATEL 100%		
HOLL GERMANY 51%		ROLL-RUB SPAIN 100%		
IKOSS GERMANY 52%				
MED INFORMATICA-SLIGOS SPAIN 70%				
O.DATI ESPANOLA SPAIN 70%				
PROCESA-SLIGOS SPAIN 100%				
MERSARTEAM ITALY 65%				

**Recent  
Acquisitions**

Sligos made a number of acquisitions in 1990, 1991 and 1992, extending its European coverage in Germany, Spain and the U.K., and increasing its presence in its domestic market.

**1990 Acquisitions:**

- Acquired MESARTEAM - an Italian company specialising in computer systems development for industrial companies. The company has offices in Turin, Milan and Rome and employs 300 people. Sligos acquired a 65% stake and consolidated revenues of FF 152.4 million in 1990.
- Acquired MAINTEC - a French company based at Arras and focussed on software re-engineering and conversion. Sligos acquired 100% of the equity, which contributed FF 13 million of revenues in 1990.
- Acquired SERTECH - another French company providing cheque processing services and system development work for banks. SERTECH was fully acquired and achieved an FF 85 million turnover in 1990.
- Acquired PINK E. - was created with a 60% holding by Sligos in association with a Dutch company PINK ELEPHANT. The company is dedicated to supporting and running BULL data centres. Consolidated revenues for 1990 were FF 4.9 million.
- Acquired PROCESA - this company was fully acquired in Spain; it specialises in banking systems and electronic funds transfer. Employing 70 people, it generated FF 50 million in revenues in 1990.

**1991 Acquisitions:**

- Acquired 51% of German software company Höll, which sells its own stocks and securities management software package interfaced with ACTIS' PABA software package. The company had 1991 revenues of FF 10 million.
- Acquired 70% of Spanish professional services company Med Informatica-Sligos. The company, based in Barcelona, achieved 1991 revenues of FF 54 million and employs 190 people. It specialises in professional services for the banking sector and has developed a number of bank management and payment systems.
- Sligos also made another acquisition in Spain, purchasing 100% of O.DATI Española. The company offers professional services to financial institutions, mostly based in Madrid, although it is also active in the insurance and industrial markets. O.DATI employs 170 people and achieved 1991 revenues of FF 53 million.

**1992 Acquisitions:**

- In Germany, Sligos acquired 52% of IKOSS, which has offices in Stuttgart, Aachen, Frankfurt and Zurich. IKOSS specialises in computer-aided engineering, design and manufacturing and develops and sells software architecture in the Digital Equipment environment under UNIX. The company has clients in the banking sector, the oil industry and the telecommunications market. IKOSS employs 400 people and its 1991 turnover amounted to FF 275 million.
- In the U.K., Sligos acquired Nexus, which employs 100 staff and achieved 1991 turnover of FF 100 million. Nexus specialises in banking and payment systems services, and particularly in the management of ATMs and EFT POS terminals.

**Key Products and Services****(a) Technologies**

Sligos is particularly experienced in providing network services relating to the banking and finance sector, such as credit card processing, electronic funds transfer and even home shopping via videotex.

Sligos is maintaining its permanent research commitments, especially in networks, languages and artificial intelligence. Projects include the high-speed broadband experimental (optical fibres) network for France Telecom; Sligos also takes part in European research and development projects, such as the RACE programme for investigation of new broadband communications networks.

Sligos holds a predominant position in the videotex market, where more than 50,000 terminals connect daily to the group's network, with over 4.5 million professional electronic data interchanges handled annually. The company also supplies systems and network software.

**(b) Industry Knowledge**

Sligos' main areas of expertise lie in the banking and finance and manufacturing sectors.

In the banking and finance sector, Sligos specialises in bank card processing and electronic funds transfer and banking system development.

Much of Sligos' activity in this area consists of processing of credit card payments. Sligos also undertakes the development of customised payment systems for distributors and other large companies. For example, Sligos recently implemented a point-of-sale system for Shell service stations. In addition, Sligos manufactures personalised cheque books. In the business of payment system engineering and processing, which accounts for almost half of total sales, Sligos has pioneered technological breakthroughs in memory-chip payment cards (a world leader in the plastic-money segment and interbank network-switching systems).

Sligos also has a significant presence in the manufacturing sector through its subsidiaries CMG (France), Actis (Germany) and Mesarteam (Italy).

In the business services sector, Sligos offers solutions for accountants through its MANAGIX subsidiary.

Sligos is one of France's largest companies in the computer services field. As both systems architect and installer, the group claims to combine state-of-the-art engineering solutions with sophisticated information processing equipment and systems. Sligos' operations cover a diversified range of client needs: banking and financial data processing, payment media, information systems for large corporate clients/public authorities, industrial process management, server and network servicing, specialised account programme for small and medium-sized companies as well as overall design and management of data processing techniques.

### **Electronic Payment Systems**

This activity mainly consists of processing of credit card payments. Sligos also undertakes the development of customised payment systems for distributors and other large companies. For example, Sligos implemented a point-of-sale system for Shell service stations. In addition, Sligos manufactures personalised cheque books. In the business of payment system engineering and processing, which accounts for almost half of total sales, Sligos has pioneered technological breakthroughs in memory-chip payment cards (a world leader in the plastic-money segment) and interbank network-switching systems.

### Microcomputer Expertise

In microcomputing, Sligos distributes and services microcomputers and supplies software aimed at tailor-made solutions for small/medium/large corporations and chartered accountants. The revenue distribution in this area is as follows:

Hardware systems	41%
Software and services	34%
Accessories	13%
Maintenance	12%

### Systems Development

This activity accounts for about 20% of Sligos' revenues. More than 1,000 of the professional staff are engaged in the development of information processing projects and applications in all aspects of industrial automation as well as management planning and quality control. The following is a breakdown of this sector into its three industry groups:

Banking/insurance/services/energy	44%
Industry	40%
Public administration	16%

### Network Services

Sligos holds a predominant position in the videotex market, where more than 50,000 terminals connect daily to the group's network, with over 4.5 million professional electronic data interchanges handled annually. (The company also supplies systems and network software.)

This fast-growing sector is split into two areas - the provision of services for companies (for internal use or for dealing with clients), and public systems (videotex). The breakdown between the two is as follows:

Public/videotex	75%
Private/company services	25%

**Financial  
Information**

Exhibit B provides a six-year financial summary.

**Exhibit B****SIX-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)**

YEAR	1986	1987	1988	1989	1990	1991
Revenues	1,164	1,444	2,080	2,556	2,898.5	3,211.3
Annual Growth Rate (%)	22	24	45	23	13	11
Profit before Taxes	98.8	160.1	200.7	279.9	282.6	331.6
Annual Growth Rate (%)	190	62	25	39	1	17
Profit after Taxes	32.3	76.3	98.5	133.5	160.2	170.7
Annual Growth Rate (%)	45	136	29	36	20	7

**Market Analysis****Exhibit C****1991 MARKET ANALYSIS BY SLIGOS-REPORTED ACTIVITY  
(FF MILLIONS)**

ACTIVITY	REVENUES	PERCENT
Professional Services	1,079.0	33.6
Microcomputing	353.2	11.0
Solutions for Chartered Accountants and Small and Medium-Sized Businesses	257.0	8.0
Banking and Card Processing Services	973.0	30.3
Payment Media	346.8	10.8
Value-Added Services	202.3	6.3
<b>Total</b>	<b>3,211.3</b>	<b>100.0</b>

Source: Sligos

Exhibit D shows a breakdown of estimated information service revenues by European country.

#### Exhibit D

##### 1991 MARKET ANALYSIS BY COUNTRY AND EUROPEAN INFORMATION SERVICES (\$ MILLIONS)

COUNTRY	REVENUES*	PERCENT
France	400	86
Germany	9	2
U.K.	14	3
Italy	19	4
Spain	19	4
Other Europe	4	1
<b>Total Information Services</b>	<b>465</b>	<b>100</b>

\* INPUT estimates

#### Exhibit E

##### 1991 MARKET ANALYSIS BY INDUSTRY SECTOR EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	65	14
Process Manufacturing	30	6
Utilities	10	2
Retail Distribution	20	4
Wholesale Distribution	20	4
Banking and Finance	205	44
Insurance	25	6
Local Government	25	6
National Government	45	10
Business Services	20	4
<b>Total Software and Services</b>	<b>465</b>	<b>100</b>

\* INPUT estimates

Exhibit F shows INPUT's delivery mode analysis of Sligos' 1991 revenues.

Exhibit F

**1991 MARKET ANALYSIS BY DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Processing Services	190	41
Turnkey Systems	75	16
Applications Software Products	15	3
Systems Software Products	10	2
Professional Services	90	19
Network Services	45	10
Systems Integration	30	7
Systems Operations	10	2
<b>Total</b>	<b>465</b>	<b>100</b>

\* INPUT estimates

## Strategic Analysis (a) Company Direction

Management strategy is continuing to be focused on consolidating leading French and European positions for each of the group's complementary sectors of operations.

In France, the rest of Europe and the United States, particular growth potential is seen in the banking/financial information system sector. Providing computer solutions for small and medium-sized companies is also expected to assure expansion in France, while in other European countries Sligos is focusing on the market for internal corporate networks and servers as well as information systems for large companies and administrations.

During 1990, Sligos undertook a significant reorganisation of its activities in order to focus on large corporate needs on the one hand and on the needs of personal computer systems support on the other. Effectively, the focus of competences was represented by Sligos itself and CMG.

Ongoing strong internal growth is being backed by an ambitious acquisition programme in European markets. The group objective is to generate 25% of revenues from sources outside France. Gerard Bauvin would like Sligos to reach revenues of FF 5 billion by 1993.

In 1991, foreign subsidiaries in Germany, Spain, Italy and the U.K. accounted for 15% of overall revenues. Sligos is confident that this will increase to 20% by the end of 1992.

Overall, Sligos is endeavouring to extend its European coverage outside France, while concentrating on expanding its activities in its two main sectors: banking and finance and manufacturing.

*(i) Consulting*

Sligos so far shows no sign of establishing a management consultancy capability to assist the company in winning large projects.

However, the company does have consultants capable of assisting clients in the banking and finance sector in areas such as marketing, organisation and human resources.

*(ii) Geographic Coverage*

In 1991, 85% of Sligos' revenues were accrued in France, though the company's aggressive acquisition policy should soon assist the company in moving towards its goal of achieving 25% of its revenues from outside France. However, even the achievement of this target will leave the company trailing considerably behind its major rival, CGS, in its penetration of the European software and services market.

Foreign sales to date have been generated largely by Sligos' expertise in the electronic fund transfer sector. Recent international projects include consulting, system engineering, integration of smart card technology into existing networks and supply of plastic cards in Europe.

Sligos has also built the capability to address the manufacturing sector in Germany and Italy through its acquisition of Actis and Mesarteam. It has also significantly increased its focus on the banking and finance sectors in Spain with the acquisition of O.DATI Española and Med Informatica-Sligos.

Sligos has a marketing agreement with IBM permitting IBM to market MANAGIX's EXC products to the accounting profession. It also has formed partnerships with Hewlett-Packard, Digital, Apple, Toshiba and Compaq.

**(b) Strengths and Weaknesses**

Despite the company's expertise in the manufacturing sector, Sligos' principal strength lies in payment systems using technologies such as:

- Electronic funds transfer
- Smart cards
- Videotex

Bank card processing is a particular strength of Sligos.

Sligos' main weakness has been its lack of European coverage, a situation the company is addressing successfully with its recent European acquisitions. Sligos' other weakness is its lack of management consultancy capability. It is possible that the company will try to strengthen its consultancy business through further acquisition.

The company's vertical market presence is limited compared to that of its major rivals. Its main areas of expertise lie in the banking and finance and manufacturing sectors.

**(c) Conclusions and Strategic Assessment**

Sligos is one of the largest independent software and services vendors in France, but its activities are still largely concentrated both within France and within a number of niche activities.

Sligos' ambitions to increase its geographic coverage are supported by its International division. The division is dedicated to managing and developing the group beyond French borders through its subsidiaries. It is also in charge of acquisitions and multinational projects for the group's large customers.

Sligos is an example of an ambitious services-based organisation attempting to achieve a pan-European leadership position in its selected market sectors, notably banking and finance. It has pursued these ambitions through an aggressive acquisitions policy, historically in its home market of France, but most recently in Germany, Spain, Italy and the U.K.

Supported financially by its major shareholder, Crédit Lyonnais, Sligos can be expected to continue to pursue its acquisition strategy and the development of its key applications and technologies to support the banking and finance area.

In its target country markets, Sligos can be expected to represent a significant competitive challenge to other vendors within the specialist markets in which it operates.

## COMPANY PROFILE

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### **SOFTWARE AG**

Uhlaandstrasse 12  
Postfach 1300 251  
6100 Darmstadt 13  
Germany  
Tel.: 49 61 51 92-0  
Fax: 49 61 51 92-1191

Status: Private (100% shares held by  
Software AG)  
Number of Employees: 1,212 (Germany), 4,282  
(worldwide)  
Revenue (FYE 31-12-91): DM 449 Million  
(Europe)

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### **The Company**

Software AG was founded in 1969 in Darmstadt, Germany and is one of the world's largest independent software vendors.

The company is a leading supplier of systems software, particularly in the field of database technology (ADABAS) and application development tools (NATURAL).

Around 4,500 organisations use Software AG products, which are available through affiliates and partners in 60 countries.

It has offices and associated companies in over 60 countries worldwide. Software AG Germany is the worldwide head office and Software AG North America is the head office in charge of the U.S. and overseas. The company is organised into eight major business areas:

- Systems software
- Application solutions
- Professional services
- Education
- Consultancy
- Customer services

Total revenues for 1991 amounted to DM 712 million (1990; DM 584 million) including wholly owned subsidiaries and international affiliates. Consolidated performance for the Software AG group (these figures do not include the license shares retained by international affiliates) amounted to DM 556.4 million.

**INPUT LIBRARY**

**Organisational Structure**

In 1990, a worldwide operations board, representing all aspects of Software AG's business, was created to resolve global business issues quicker. Software AG's senior management frequently consults with customers and industry analysts to ensure that decisions are consistent with market needs.

Software AG relies on affiliates and partners to help create "Solutions Worldwide" but its strategic partnerships extend beyond sales to include distinguished consultants, hardware manufacturers, communication vendors and many others.

**Exhibit A****SHAREHOLDERS**

NAME	PERCENT OWNED
BGB-Gesellschaft (trust representing employees)	100

Exhibit B and Exhibit C list Software AG's major subsidiaries.

**Exhibit B****MAJOR SUBSIDIARIES**

GERMAN SUBSIDIARIES	PERCENT OWNED
Software AG Anwendungen & Co. (oHG), Alsbach	98.04
Software GmbH Marketing Darmstadt	100.00
Software Middle East GmbH, Darmstadt	100.00

## Exhibit C

FOREIGN SUBSIDIARIES	COUNTRY	PERCENT OWNED
Software AG Systems Inc. Reston, Virginia, U.S. incl. Software AG of North America Inc. (SAGNA) and others.	U.S.	100
Software AG Ltd., U.K.	United Kingdom	100
Software AG France SA	France	100
Software AG Italia SpA	Italy	100
Software AG Belgium SA	Belgium	100
Software AG Nederland B.V.	Netherlands	100
NORDISK Software AG A/S,	Denmark	100
Software AG Norge A/S,	Norway	100
Software AG Sverige AB,	Sweden	100
Oy Software AG Finland	Finland	100
EDV Software AG,	Austria	100
DKW Systems Corporation	U.S.	100
Software AG Information Systems Trade A.S.	Turkey	90

In December 1991, Software AG employed 4,282 staff (1990; 3,798) including employees in associated companies.

## Exhibit D

## EMPLOYEE ANALYSIS

GEOGRAPHIC AREA	NUMBER OF EMPLOYEES
Europe	2,336
U.S.	686
Overseas	1,260
<b>TOTAL</b>	<b>4,282</b>

In December 1991, Software AG employed 2,336 staff in Europe.

Exhibit E

**EMPLOYEE ANALYSIS (EUROPE)**

<b>COUNTRY</b>	<b>NUMBER OF EMPLOYEES (Rounded)</b>
Germany	1200
Spain	450
U.K.	150
France	240
<b>TOTAL</b>	<b>2,336</b>

**Major Recent Projects**

Recent major projects carried out by Software AG include:

Banco Exterior (BEX), Spain - supply of ADABAS, database management system and the NATURAL fourth-generation development system. Development of knowledge-based systems and a decision support system.

Zweites Deutsches Fernsehen (ZDF) - supply of SPHINX, Software AG's media information system.

Nissan Motor Co. - supply of ADABAS and NATURAL to the majority of Nissan sites around the world. Also, development of the ANSWER production system of Nissan.

Centre for Disease Control (CDC), U.S. - supply of ADABAS and NATURAL systems as part of CDC's information systems solution.

Banco Mercantil, Venezuela - supply of ADABAS, NATURAL and NATURAL Expert, Software AG's expert systems development tool.



## Key Products and Services

Software AG has six primary areas of business:

- Systems software
- Application solutions
- Professional services
- Education
- Consultancy
- Customer services

### Systems Software

Systems software is the foundation of Software AG's corporate heritage. Software AG has expanded far beyond the mainframe to meet customers' needs for portable and interoperable applications, especially with respect to UNIX environments.

Software AG is creating portable solutions under the banner of ENTIRE Function Server Technology (EFS). ENTIRE is founded upon Software AG's open Integrated Software Architecture (ISA), which allows users to take advantage of a multitude of different hardware and software platforms.

### Application Solutions

An ever-growing area of business for Software AG is application solutions. Through this area of business, Software AG offers a creative resource for turnkey solutions that provide customer support during all phases of the project life cycle. By combining a base package with other Software AG tools and professional services, the clients have a full range of powerful alternatives available to them.

### Professional Services

The professional services group helps customers build strategic solutions. This division handles development and implementation functions, which range from needs analysis and requirements definition to system design, creation, coding and testing as well as systems documentation, user training and business implementation.

### Education

Education has expanded beyond product courses to include a wide variety of other DP topics. Software AG offers customers help in emerging topics of interest, such as CASE technology, on-site.

## **Consultancy**

The consultancy group provides assistance in developing information strategies, in formulating and executive information system, in choosing standard software packages, in selecting hardware and networks, in developing migration strategies and in reorganising computer centres.

## **Customer Services**

In 1990, Software AG made further efforts to enhance the need for customer support with the same quality and attention to detail that its products provide, thus technical support staff worldwide were increased during the year.

## **Products**

Software AG's flagship products are ADABAS, NATURAL and PREDICT.

Implementation of core products for all significant hardware platforms and operating systems was completed during 1990 as part of the open Integrated Software Architecture (ISA) objectives. ISA products are now available for IBM, Digital, Wang and Siemens-Nixdorf platforms; Apple and IBM microcomputers; and for several UNIX systems.

ISA enables full portability across many different computers of all sizes and gives users unprecedented freedom in their choice of hardware and operating environments.

## *Applications Development Solutions*

The foundation for Software AG's continued success in applications development tools is NATURAL, the proven fourth-generation language that significantly increase productivity. NATURAL was further strengthened through new enhancements for: PREDICT, Software AG's integrated active dictionary; NATURAL CONSTRUCT, a powerful application generator that uses models to generate reliable, tested code; and PREDICT CASE, an integrated CASE tool that supports the analysis and design phases of the system development life cycle.

PREDICT is an open, active data dictionary. PREDICT's metastructure can now be extended in accordance with customized client standards, due to its new user-defined entities. Furthermore, data base support for DB2, SQL/DS, Rdb, RMS and DMS has been significantly enhanced. PREDICT GATEWAY provides PREDICT with the results for different design- and analysis-based systems.

*Database Solutions*

ADABAS is a powerful database system that allows widely different conceptual models to be easily implemented - such as flat tables, text, geography and structures based on entity relationships. For more than 20 years, ADABAS' evolutionary approach has enabled it to accept new data models. Future enhancements will include increased performance on all ISA platforms and the ability to support and integrate new data models such as object orientation.

*Information Processing Solutions*

ISA provides the strategy for Software AG's Universal Office using the powerful management and distribution system CON-NECT, the information retrieval system NATURAL DOCUMENT MANAGEMENT, and the decision-support and query system SUPER NATURAL. With these tools, Software AG provides a seamless integrated solution for end-user access and information processing requirements.

*Computer Centre Management Solutions*

Software AG computer centre products, each implemented using NATURAL, provide a common and comprehensive set of tools for the processing of applications and automatic portability to all ISA environments.

*Open Communications*

In 1990, Software AG launched ENTIRE Function Server Technology and its supporting products. ENTIRE allows users to develop new applications or move existing ones to distributed computing environments. It uniquely encompasses mainframe and midrange computing, as well as workstations and PCs, under such platforms as IBM, SNI, DEC, HP, Microsoft, MVS, UNIX, OS/2, Windows and Apple.

**Financial  
Information****Exhibit F**

**THREE-YEAR FINANCIAL SUMMARY  
(GROUP REVENUES INCLUDING AFFILIATED COMPANIES)  
(FYE 31-12) (DM MILLIONS)**

YEAR	1989	1990	1991
Group Revenue	526.9	584.0	712
Annual Growth Rate (%)	23	11	22
Profit before Taxes	30.3	-	-
Annual Growth Rate (%)	43	-	-

Software AG has been profitable every year since its foundation in 1969.

**Exhibit G**

**THREE-YEAR FINANCIAL SUMMARY FOR SOFTWARE AG CONCERN  
(EXCLUSIVE OF AFFILIATED COMPANIES) (DM MILLIONS)**

YEAR	1989	1990	1991
Revenue	436.2	458.9	556.4
Annual Growth Rate (%)	-	5	21
Profit before Taxes	-	30.9	40.5
Profit after Taxes	-	3.4	13.3

## Exhibit H

**1991 MARKET ANALYSIS BY BUSINESS AREA  
(SOFTWARE AG CLASSIFICATION) (DM MILLIONS)**

BUSINESS AREA	REVENUE*	PERCENT
Licence	259.8	36
Maintenance	176.3	25
Application	153.8	22
Training	40.6	6
Consultancy	24.5	3
Other +	57	8
<b>TOTAL</b>	<b>712</b>	<b>100</b>

Source: Software AG

\* These figures relate to the Software AG Concern companies plus other sales partners supplying Software AG systems to other foreign markets.

+ "Other" includes sales from various operations within the Software AG Group, including hardware transactions with subcontractors, system engineering services and sales of documentation products.

## Exhibit I

**1991 MARKET ANALYSIS BY GEOGRAPHIC AREA (DM MILLIONS)**

GEOGRAPHIC AREA	REVENUE	PERCENT
Europe	449	63
U.S.	146	21
Overseas	117	16
<b>TOTAL</b>	<b>712</b>	<b>100</b>

## Exhibit J

**1991 MARKET ANALYSIS BY INPUT SERVICE MODE (\$ MILLIONS)**

INPUT SERVICE MODE	REVENUE	PERCENT
Applications Software Products	5	2
Systems Software Products	240	81
Professional Services	15	5
Turnkey Systems	35	12
<b>TOTAL</b>	<b>295</b>	<b>100</b>

## Exhibit K

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUE	PERCENT (ROUNDED)
Manufacturing (Discrete)	60	20
Manufacturing (Process)	25	9
Banking/Finance	60	20
Insurance	20	7
Distribution (Retail)	10	3
Distribution (Wholesale)	10	3
Transportation	10	3
Utilities	10	3
Health Care	25	9
Education	5	2
Local Government	20	7
National Government	20	7
Telecommunications	10	3
Business Services	10	3
<b>TOTAL</b>	<b>295</b>	<b>100</b>

## Exhibit L

**1991 MARKET ANALYSIS BY COUNTRY MARKET  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUE	PERCENT
France	32	11
Germany	91	31
U.K.	47	16
Italy	15	5
Spain	65	22
Switzerland	15	5
Austria	6	2
Other Europe	24	8
<b>TOTAL</b>	<b>295</b>	<b>100</b>

### Company Strategies

#### (a) Company Direction

Over the past twenty years, Software AG has developed into a supplier of a broad range of products in the following areas:

- Database management systems
- Communication systems
- Applications development tools
- End-user functionality and products
- Application solutions

In addition, a services area has been established that operates in three different fields:

- Training
- Customer solutions
- Management consultancy

Software AG is currently acquiring specialist knowledge in a wide range of fields, in order to communicate with customers at all levels, from data processing to end-user areas to corporate management.

Software AG does not regard itself as a software supplier any more, but rather as a provider of solutions and a business partner for its customers. An example is its Applications Development area, which offers applications solutions. Software AG's strategy is to produce kernel solutions that can then be used as a basis for creating comprehensive tailor-made solutions for individual customers.

The company's strategy also includes expansion of its training business and the Software AG Akademie, which offers management training.

Software AG sums up its future direction in three key areas: data processing, customer orientation and object orientation. The company's emphasis is on data processing solutions that fulfil customers' needs and expectations. It has been following this customer-driven approach ever since its foundation and plans to continue to implement it in the form of practical concepts and product lines.

The company has adopted two strands of development: firstly, the development of its ENTIRE Technology, which allows users to take advantage of a multitude of different hardware and software platforms; secondly, the company's development from a software supplier into a solutions and systems house. The ENTIRE concept enables the integration of existing data processing environments into developing hardware and software environments. This allows evolutionary migration from centralised data processing to the world of client/servers.

ENTIRE Technology also allows the integration of object-oriented applications. In order to further the development of object orientation, Software AG has joined the Object Management Group (OMG), which recently appointed Peter Pagé, a member of Software AG's Board of Management, to its board.

*(i) Consultancy*

Software AG's consultancy activity (excluding affiliate activity) achieved revenues of DM 15.1 million in 1991, an increase of 30% over 1990. The company plans to expand its consultancy in the future as part of its solutions-driven approach.

*(ii) Partnerships*

Software AG is focusing on strengthening its strategic alliances with selected partners in order to be able to offer as comprehensive a service range as possible. The company already has formed partnerships with Microsoft and Hewlett-Packard. Most recently, Software AG and Apple Computer announced a strategic relationship that will enable users to combine the client/server solutions offered by each company.

Products and technologies resulting from the agreement will give Macintosh users access to Software AG's database and applications development technologies, while Software AG's users will be able to incorporate the Macintosh into their corporate computing solutions.

Software AG sees "its partnership with Apple as demonstrating its commitment to Open Enterprise Computing by establishing the Macintosh as a powerful tool for commercial application developers".

**(b) Strengths and Weaknesses**

Software AG's main strengths can be summarised as:

- Largest European-based independent software company
- Stable reputation
- Strong government and financial expertise
- Reputation for technological innovation

Software AG is one of the world's leading privately owned software companies and is Europe's largest. The company has representatives in 60 countries and markets its products worldwide. Its worldwide presence, together with its reputation is an established vendor with a stable financial history, make Software AG a strong competitor.

The company is particularly strong in the manufacturing, government and finance sectors.

Software AG has always had a strong reputation for technological development. Its flagship products are ADABAS, its database management system; PREDICT, a data dictionary; and NATURAL, a fourth-generation language.

In 1991, Software AG launched its Entire Function Server Technology. This set of products will support the development and delivery of client/server applications, using Software AG and third-party products.

The main challenge for Software AG will be to move away from the mainframe market and to successfully market its Entire Function Server products to its customer base.

### **(c) Conclusions**

Software AG has pursued a policy of steady growth since 1969, usually in the realm of 20% to 25% per annum. This, together with a strong financial policy, has given Software AG a reputation for stability.

Software AG has traditionally developed systems for the mainframe environment, but has now moved into the UNIX arena at a much later stage than other vendors. The company's strategy for its UNIX offerings focuses on delivering to existing customers as a means of migrating to open systems and to small and medium-sized businesses via third-party vendors.

1991 saw the delivery of the first components of Software AG's ENTIRE Function Server Technology.

Incorporating the Macintosh into ENTIRE is a key element of Software AG's ENTIRE Client Workstations (EWS) strategy. EWS is designed to allow Software AG customers to take advantage of modern graphical user interfaces as they move to client/server solutions.

Two Software AG products are currently available for the Macintosh: NATURAL Architect Workstation and NATURAL CONNECTION for the Macintosh.

In 1992, Software AG expects its UNIX product line to make a significant contribution to turnover, forecasting an increase of 15% in product revenue over 1991.

In the past, the main competitive threat to Software AG has come from IBM with its DB2 offering. Software AG responded to this threat by broadening its product range.

Now Software AG is responding to industry trends by porting systems to UNIX platforms and developing new products.

The company is shifting its emphasis from marketing itself as a software provider to that of a solutions company. INPUT expects Software AG to move increasingly into the professional services market.

## COMPANY PROFILE

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### **TELEKURS AG**

Hardturmstrasse 201  
CH-8005 Zurich  
Switzerland  
Tel.: 41279 21 11  
Fax: 41 1 271 80 10

Executive Vice President: Georg Kramer  
Status: Public  
Number of Employees: 1,489  
Revenue (FYE 31-12-91): SF 355 Million

---

### **The Company**

Telekurs is a major Swiss-owned electronic information services vendor, selling on-line financial information, trading systems and related professional services.

The company is owned by 300 banks and stock exchanges, primarily Swiss, to which it also provides processing services. It sells its electronic information services to European banking centres and also is responsible for the Swiss computer centre where all the payment transfers between Swiss banks are executed.

In 1989, Telekurs achieved a turnover of SF 339 million (\$200 million), an increase of 6%. However, the company also reported an unusual loss of SF 91 million due primarily to delay occurring in the introduction of a new generation of IBM operating system software at the main computer centre. This cost more than expected to overcome, and it also delayed new customer revenues planned for the year.

In 1990, turnover was up a mere 6% and the company again reported losses of SF 7.2 million (20% lower than 1989).

1991 for Telekurs was a year of rationalisation and restructuring, resulting in its return to profit after two years of losses. Revenue increased 4% to SF 355 million with profits of SF 20.7 million.

At the end of 1991, Eurocard Telekurs credit card processing and administrative division was set up as a separate company (Eurocard Switzerland S.A.) and as a wholly owned subsidiary of Telekurs.

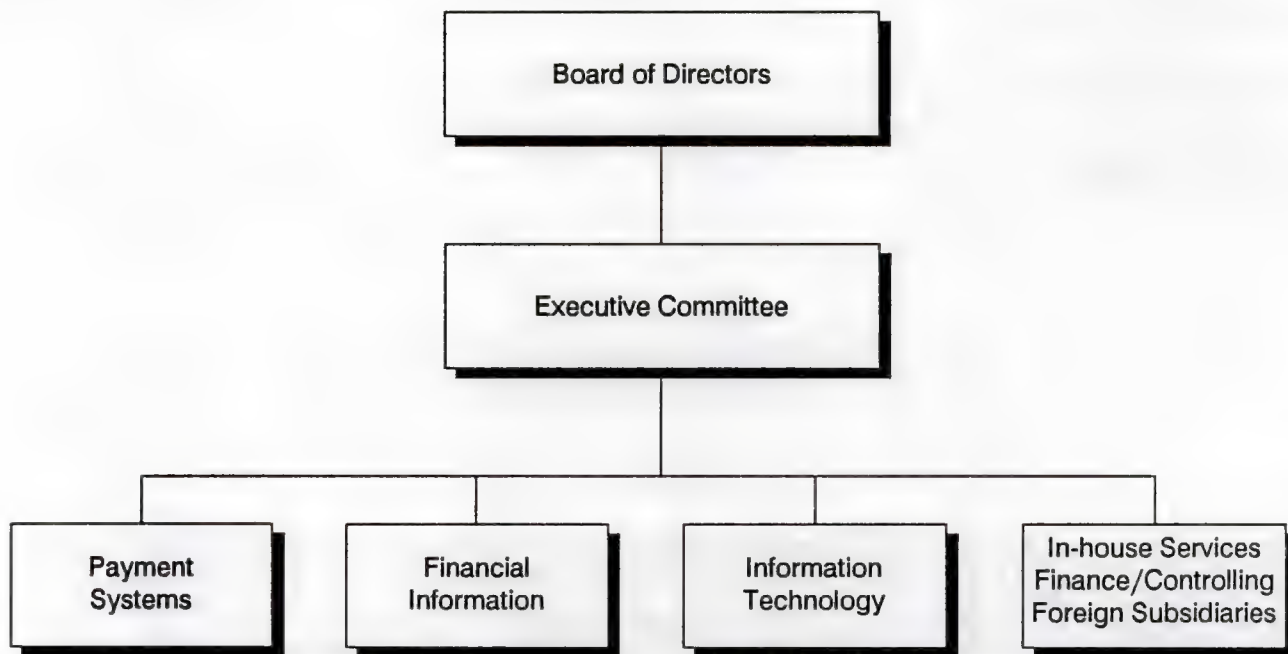
### **Organisational Structure**

The organisational structure of Telekurs AG is shown in Exhibit A. Key executives are shown in Exhibits B and C.

**INPUT LIBRARY**

Exhibit A

ORGANISATIONAL STRUCTURE OF TELEKURS AG



## Exhibit B

## KEY EXECUTIVES

Dr. Georg Kramer Executive Vice President	Telekurs AG
Richard Walder First Vice President	Auditing Unit
Dr. Jacques Bischoff First Vice President	Central Secretariat

## Exhibit C

## OTHER KEY EXECUTIVES

Dr. Christopher Nokes Senior Vice President	Financial Information Systems
Medard Storz Senior Vice President	Payment Systems
Ulrich Kunz Senior Vice President	Information Technology

In 1991, Telekurs AG employed 1,489 staff. A breakdown of employees by job activity is shown in Exhibit D.

## Exhibit D

Job Activity	Percent
System and Software Development	10.0
Management	21.4
Acquisition of Financial Data	4.1
Administration	23.5
Production and Technical Staff	19.4
Sales and Marketing	3.8
Other Staff	18.4
<b>Total (Rounded)</b>	<b>100.0</b>

Source: Telekurs

**Key Products and Services**

The Financial Information division is responsible for the following products:

- Investdata is a real-time information system, widely used in Switzerland and abroad, that allows access to prices, lists and news from over 100 international stock exchanges and financial markets and market makers.
- Valordata is a service for custody administration of securities in Switzerland and many other countries on a day-to-day basis.
- Telekurs Digital Feed (TDF) offers real-time information from a wide range of sources on 260,000 securities, indices, options, futures, commodities, money markets and foreign exchange notes, precious metals and business news. The information is supplied in standard format that can easily be used by customers.
- Historical Prices provides a technical analysis service for investments. It supplies historical data on shares, indices, currencies and precious metals from the world's leading exchanges and market makers.
- Forex Spot is a pocket radio receiver that gives the user immediate access to the latest foreign exchange rates and precious metals prices, Eurorates and various indices. The information is broadcast by PTT transmitters to all of Switzerland's major financial centres.
- Investvision is a television-based broadcast service jointly developed with Swiss Teletext. Information is continuously updated for investors, investment advisors and the general public. Price information is broadcast on approximately 6,000 securities from the Telekurs' database.

The Payment Systems division offers:

- SIC (Swiss Interbank Clearing) provides speedy settlement of payments between Swiss banks.
- Data Carrier exchange (DTA) and Direct debiting (LSV) enable bank customers to clear their payments directly via the banks' computer centre at Telekurs.
- Standard Swiss Cheques administers Eurocheque activities including cash dispenser and direct debits.
- Card Service provides a full service for various credit and customer card issuers, including Eurocard. The card service facility includes authorisation and collection of cards and processing of transactions.

The Information Technology division offers services in the following areas:

- Networks and Data communications
- Inter Enterprise Services
- Facilities Management

#### Networks and Data Communications:

Telekurs operates two high-performance networks, which together transmit more than 900 million messages a year. These form the core of a system that gathers data from the world's business centres, distributes financial information (e.g., through Investdata) and handles payment transactions (e.g., SIC).

TELOSnet, an industry-standard X.25 packet-switching network, supplements the communications facilities and value-added network services offered by Telekurs.

#### Inter Enterprise Services:

This service provides electronic exchange of business information between companies and banks.

#### Facilities Management:

- Telekurs provides facilities management services. It operates the Ring Information System (RIS) and Transaction Processing (AV) services on behalf of the Swiss Stock Exchanges.

## Financial Information

### Exhibit E

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (SF MILLIONS)

	1987	1988	1989	1990	1991
Revenue	264.6	320.4	338.8	340.8	354.9
Annual Growth Rate (%)	-	21	6	6	4
Profit after Tax	0.8	1.0	(9.1)	(7.2)	20.7
Annual Growth Rate (%)	-	25	(1,010)	21	388

# Market Analysis

## Exhibit F

### 1991 MARKET ANALYSIS BY TELEKURS-REPORTED PRODUCT GROUP (SF MILLIONS)

PRODUCT GROUP	REVENUE	PERCENT
Stock Exchange Telex/ Television	0.5	>1
Valordata System	39.8	11
Investdata System	87.1	25
Datafeeds/TDF	4.1	1
Miscellaneous Services (Financial Information)	35.2	10
Payment Systems Development	23.6	7
Payment Systems Processing	114.5	32
Eurocard Processing	18.6	5
Income IT/Stock Exchange	19.8	6
Income Services	11.7	3
<b>TOTAL</b>	<b>354.9</b>	<b>100</b>

Source: Telekurs

## Exhibit G

### 1991 MARKET ANALYSIS BY TELEKURS REPORTED ACTIVITY (SF MILLIONS)

ACTIVITY	REVENUE	PERCENT
Financial Information	166.7	47
Payment Systems	156.7	44
Information Technology	19.8	6
Services	11.7	3
<b>TOTAL</b>	<b>354.9</b>	<b>100</b>

Source: Telekurs

## Exhibit H

**1991 MARKET ANALYSIS BY COUNTRY MARKET  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

COUNTRY	REVENUE	PERCENT
France	11	4%
Germany	43	17%
U.K.	6	2%
Italy	3	1%
Netherlands	15	6%
Switzerland	168	67%
Austria	5	2%
<b>TOTAL (Rounded)</b>	<b>250</b>	<b>100</b>

## Exhibit I

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

INDUSTRY SECTOR	REVENUE	PERCENT
Banking and Finance	215	86
Insurance	25	10
Other	10	4
<b>TOTAL</b>	<b>250</b>	<b>100</b>

Note: Telekurs also has a subsidiary in the U.S.

## Exhibit J

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
EUROPEAN SOFTWARE AND SERVICES (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Processing Services	117	47
Professional Services	3	1
Network Services	130	52
<b>TOTAL</b>	<b>250</b>	<b>100</b>

\* INPUT estimate

**Company  
Strategies****(a) Company Direction**

Telekurs AG continues to go through a period of change. It is realigning its business strategy in accordance with market-led criteria established by the company as strategic to its future development. Changes to Telekurs' offerings were instigated in 1991 and will continue throughout 1992.

In 1991, attention was focused on the initial implementation of the new strategy in the Financial Information division, where new products based on leading-edge technology are now being developed and will replace the present services over the next few years.

The company expects the upgrading and expansion of the services offered at present to guarantee a smooth changeover to the next generation of products.

Strategic realignment is also reflected in new services and areas of business. Telekurs AG has identified EDI as a development area for its business and is now examining the possibility of putting in place its own EDI infrastructure.

Organisational measures in connection with the hiving-off of EUROCARD (Switzerland) S.A., which was completed at the end of 1991, prompted Telekurs AG to develop a new card service profit centre.

In the Payment Systems division, various projects concerned with the upgrading of existing products now constitute a second major field of activity. As a result of sound achievements at all levels and improvement in efficiency, no price adjustments to the classical interbank services were necessary.

The aim of this new strategy is to reduce communications costs, modernize the existing infrastructures, incorporate new standard technologies and create a unified platform for all Telekurs AG services.

Some of the objectives defined in the communications strategy have already been put into effect with the new TELOSnet service. TELOSnet was commissioned in September 1991. It offers existing clients of Telekurs AG the opportunity of transferring their connections to the new network without making any fresh investments. More than one billion messages were transmitted via TELOSnet and the PDN and Telekurs network in 1991.

Telekurs' primary aim is to enable its clients to make a smooth transition from existing services to the company's new products.

**(b) Strengths and Weaknesses**

Telekurs' strengths include:

- Strength of ownership
- Impressive client base
- Large network

Telekurs possesses a major strength in its ownership. It is an unusual company in that its shareholders comprise 300 banks and exchanges. Telekurs therefore has strong financial backing and support.

Telekurs has an impressive client base. It has a strong set of 'blue-chip' customers. It provides real-time information services to the European banking and figure sectors, many of which are its shareholders, and to the insurance sector.

Telekurs has another strength in its high-performance networks. In fact, more than one billion messages were transmitted via TELOSnet and the PDN and Telekurs network in 1991.

Whilst one of Telekurs' strengths is its enviable client base, its dependency on the financial sectors can also be perceived as a weakness. The recession continues to stifle activity in many financial markets upon which the company depends, and should this continue into the longer term, Telekurs may have difficulty in retaining its revenue growth.

**(c) Conclusions**

Telekurs AG can look back on a satisfactory financial year. The volume of business has increased slightly despite a difficult economic climate and recessionary trends. The Executive Committee, which has been headed since June 1991 by Dr. Georg Kramer, has succeeded in substantially reducing total costs through rationalisation, restructuring and other economy measures.

As a result, the company has returned to profit after two years of losses. The reported profit allows the cumulative losses of previous years to be offset. In addition, no increase in share capital was needed in 1991, and no increase is foreseen for 1992.

In accordance with its new market-led strategy, major product upgrades and additions have been developed and, in some cases, have already been introduced in order to meet clients' needs with existing services in the interim.

Under the new strategy, the INVESTDATA, VALORDATA and Telekurs Digital Feed (TDF) products will be largely superseded by new digital data feeds.

The number of installed INVESTVISION devices rose by around 40% in 1991 as a result of various improvements made to the product and intensified sales efforts. This growth can be expected to continue with the transfer of this system to a multi-workstation environment.

Another major change is the designing of client systems with Telekurs AG as software supplier.

A number of services that were not in keeping with the new strategic realignment and were of little market importance - namely, INDES, TESS, Trax and stock exchange telex - were discontinued in the course of 1991.

Within the financial sector, Telekurs has been successful in diversifying into and building up skills in other areas outside of its original activity, processing for the banking sector.

The main challenge facing Telekurs, in the present economic climate, is retaining revenue growth in a market that continues to see turbulent business activity and expects little improvement through 1992.

## COMPANY PROFILE

### TÉLÉSYSTEMES

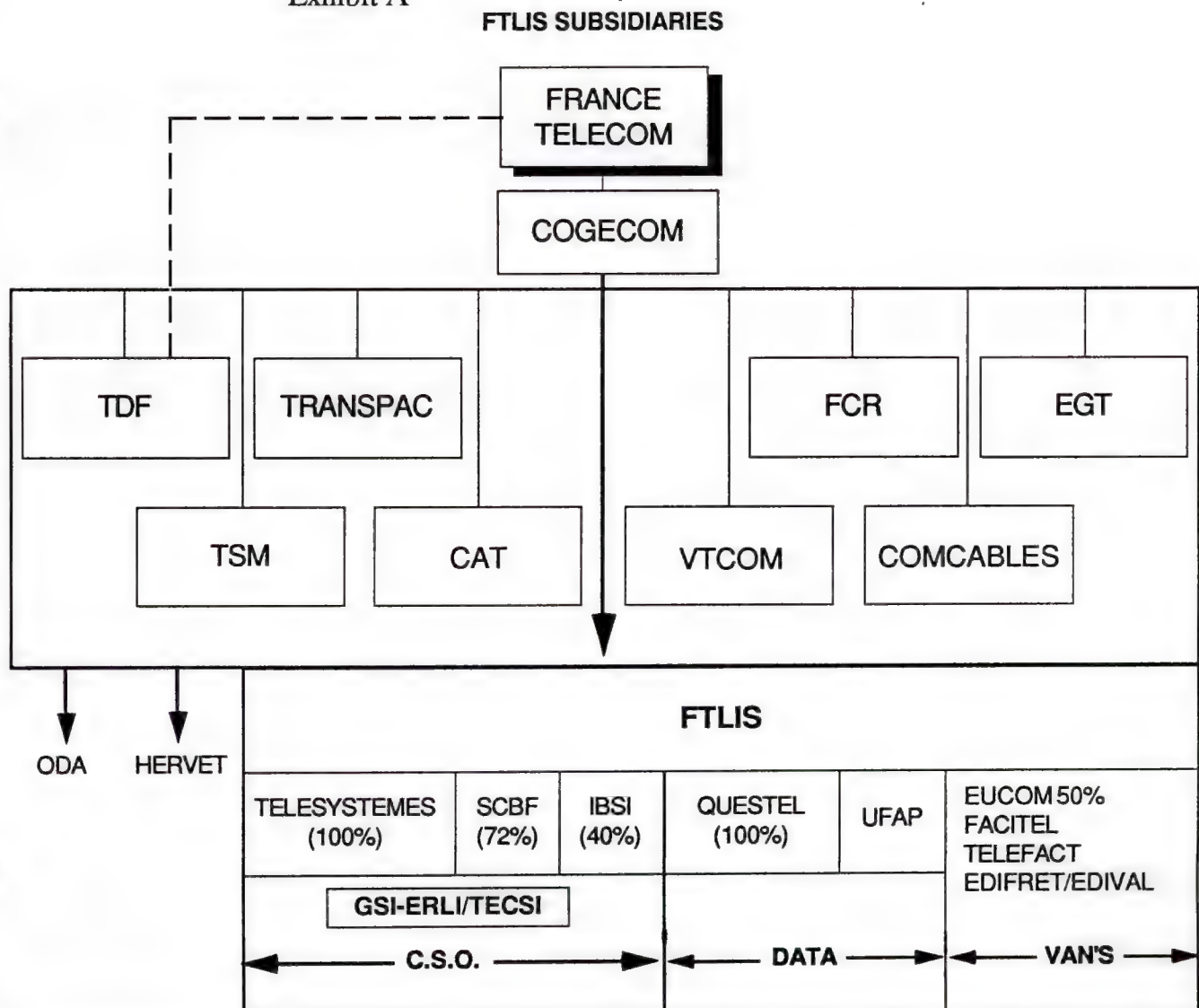
55 avenue des Champs Pierreux  
92029 Nanterre  
CEDEX  
France  
Tel: 33 1 46 14 50 00  
Fax: 33 1 46 14 50 11

CEO: Denis Varloot  
Status: FTLIS subsidiary  
Number of Employees: 2,500  
Revenue (FYE 31-12-91): FF 1.7 billion

### The Company

Télésystèmes was founded in 1969 and is one of the leading computer services and engineering companies in France. It is one of a number of FTLIS subsidiaries, which is in turn owned by France Telecom, as shown in Exhibit A.

Exhibit A



Besides Télésystèmes, the other major subsidiaries within FTLIS are:

- SCBF - which targets the banking and finance sector
- IBSI - which supplies contract staff, mainly outside Paris
- Questel - which provides access to databases supplying information on
  - patents and trademarks
  - business information
  - science and technology
  - legal issues.
- UFAP - which publishes trade directories.

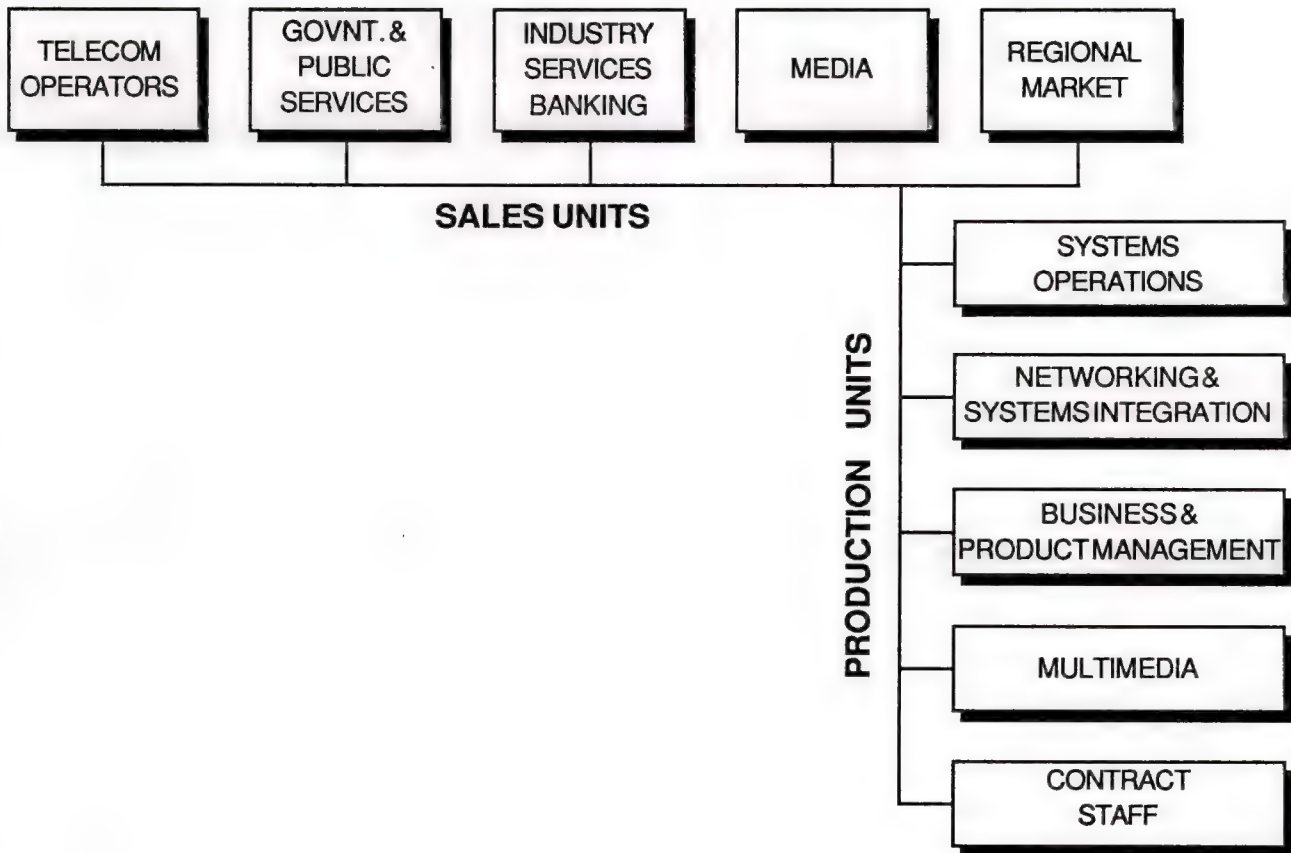
Télésystèmes earned 1991 revenues of FF1.7 billion and employs 2,500 staff. The company has six subsidiaries, namely:

- TS/CITCOM- staff contracting and training services.
- Symedia - which offers application solutions to television and radio stations, and publishing companies. The company has a strong multimedia capability.
- SEDIT - which offers application solutions and professional services to the public sector.
- SETIB - which offers cheque processing and smart card capability.
- IOP - the German subsidiary, which offers application solutions to industry.
- ATEL - which focuses on staff contracting in Spain.

**Organisational  
Structure &  
Acquisitions**

In 1990, Télésystèmes adopted the matrix structure shown in Exhibit B. The sales activity is organised by sector whereas the company's production units remain functionally organised.

Exhibit B

**TÉLÉSYSTEMES ORGANISATION STRUCTURE**

1990 acquisitions in France included IPSI, GIA-Sysmedia and Syd-Synergie.

**Financial  
Information**

The decrease in revenues for 1991 shown in Exhibit C is attributed to a re-organisation of FTLIS with a number of subsidiaries previously consolidated under Télésystèmes now becoming autonomous.

**Exhibit C****FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)**

YEAR	1987	1988	1989	1990	1991
Revenues	982	1,015	1,418	1,857	1,700
Annual Growth Rate (%)	16	3.4	40	31	(8)
Profit before Taxes	NA	17.05	(31.56)	NA	NA
Profit after Taxes	13.3	12.6	(35.3)	NA	NA

**Market  
Analysis**

The breakdown of Télésystèmes revenues by industry sector is shown in Exhibit D.

**Exhibit D****1991 MARKET ANALYSIS BY INDUSTRY SECTOR (FF MILLIONS)**

INDUSTRY SECTOR	REVENUE	PERCENT
Telecommunications	700	41
Banking and Finance	85	5
Government	170	10
Industry	320	19
International	240	14
Distribution & Services	185	11
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

Source: Télésystèmes

Exhibit E shows Télésystèmes revenues by service category, and Exhibit F provides estimates by delivery mode.

### Exhibit E

**1991 TÉLÉSYSTEMES' REVENUES BY SERVICE CATEGORY**

SERVICE CATEGORY	REVENUES (FFm)	PERCENT
Processing Services	580	34
Networks & Systems Integration	425	25
Application Solutions	355	21
Contract Staff & Training	340	20
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

Source: Télésystèmes

### Exhibit F

**1991 TÉLÉSYSTEMES' REVENUES BY DELIVERY MODE**

DELIVERY MODE	REVENUES* (FFm)	PERCENT
Processing Services	250	15
Systems Operations	450	26
Network Services	240	14
Professional Services	550	32
Software Products	150	9
Turnkey Systems	60	4
<b>TOTAL</b>	<b>1,700</b>	<b>100</b>

\*INPUT estimate

**Recent  
Major Projects**

Examples of recent major projects carried out by Télésystèmes are as follows:

**Telecommunications: (for France Telecom)**

- Alphapage mobile messaging system and implementation of a gateway permitting international use
- Development and installation of CECORE, an international automatic switching control centre.

**Government:**

- Outsourcing contracts for the ANPE (government job placement agency in France), the Paris port authority, the CNES (National Centre for Space Studies)
- Provision of an electronic funds transfer system for EDF (the French national electricity body).

**Banking and Finance:**

- Provision of an electronic home-banking system for the Beacque and Beau Bank
- Provision of cheque processing systems for BNP and Paribas.

**Industry:**

- Outsourcing contract for Thomson, the Chantiers Navals de la Méditerranée shipbuilder
- Supply of a reservation system for Air Inter.

**Media Services**

- Supply of administrative management and accounting control systems for FR3, RFO, TF1, SFP and TDF television networks
- Computerisation of programming for TV channel 2.

**Key Products and Services****Network Services****1) Databases**

The Questel division (Questel) is Europe's number one indigenous serveurur/host provider of business and professional databases. The Questel databases contain more than 60 million items of information in five main fields:

- Business
- Law
- Press and news
- Patents and trade marks
- Chemistry, medicine, science, and technology

Questel benefits from the wide availability in France of Minitel terminals, for which it has developed the necessary interface software, and the Questel Plus language, which allows for full text searching. Télésystèmes also makes this expertise available to businesses that want to have their own in-house database systems using microserveurs.

**2) Financial Network Services**

Télésystèmes is involved in activities related to electronic payments and security systems, such as:

- Electronic funds transfer
- Remote collection
- Remote payment
- Transaction security
- Access control systems
- Smart card systems

**Professional Services**

Télésystèmes offers a range of services (audits, feasibility studies, consulting, software development, etc.), products for business communication systems and their project management and implementation. Its network products include:

- Communication and switching software packages
- File transfer programs
- Electronic mail interconnection systems
- Business local-area networks (LANs) products
- Telematics, office automation communication serveurs.

Télésystèmes has also developed customised software products for France Telecom's accounting and payroll functions.

Additionally, Télésystèmes has the licence to sell AT&T's Acumaster and Netminder network management products, as well as the Tex Base (Canada) MRP products, all running under UNIX.

### **Processing Services/Systems Operations**

Télésystèmes is one of the leading systems operations vendors in France. In addition to systems operations, the company offers recovery services and the processing of cheques and smart cards for the banking sector.

The company's clients include:

- France Telecom
- Paris Harbor
- Thomson Group
- CNES
- Mediterranean Shipyards
- Radio and TV companies.

## **Company Strategies**

### **(a) Company Direction**

Télésystèmes' objective is to develop outside the French market, and its ambition is to become a top 10 European computer services and engineering company. To this end, it is actively developing new and joint ventures as shown by the investment in ATEL in Spain, the acquisition of 33% of IOP, a systems operation and electronic data interchange (EDI) company in Germany, and the formation of Télésystèmes Datamont in Italy. Télésystèmes aims to have 20% of its revenue derived from outside France by 1992, compared with 10% in 1990.

### **(b) Strengths and Weaknesses**

Télésystèmes' current strengths are:

- Financial backing of France Telecom
- Strong in outsourcing
- Network services/communications expertise.

The main challenges facing Télésystèmes are to increase its revenues in other country markets outside of France, and to expand its activities outside of the telecommunications sector.

**(c) Conclusions**

Principal areas of development for the company during the next few years will be value-added networks (VANs), video-communications and international operations.

Télésystèmes has recently acquired the rights to a product for integrating E-mail systems and supports France Telecom's Acumaster scales.

The company can also be expected to expand its application software product portfolio which currently includes:

- TX-Base-production management system for discrete manufacturing organisations.
- Engineering Express - an engineering database management system.
- SCOPE Achats - Télésystèmes' own purchasing system.

Télésystèmes will focus predominantly on application software products which run under UNIX. Both TX-Base and Engineering Express are currently available under UNIX whereas Scope Achats is awaiting conversion from a Bull CGOS environment.

Télésystèmes views partnerships with applications software products vendors as one of the keys to developing its presence in the market.



## **TIETOTEHDAS OY**

Kutojantie 10  
02630 Espoo  
Finland  
Tel: 358 0 5216  
Fax: 358 0 526 3091

Chairman: Yrjo Niskanen  
Managing Director: Matti Lehti  
Status: Public  
Number of Employees: 1,459  
Revenue(FYE 31-12-1991): FZM 768.3 million

### **The Company**

Tietotehdas is an EDP services Group established in 1968 and operating in Finland, Sweden, Norway and Denmark. The company claims to be the largest computer software and services company in Finland and is the only computer and software services company quoted on the Helsinki Stock Exchange.

Tietotehdas Oy and its subsidiaries form the Tietotehdas Group. It addresses the banking, insurance, engineering and manufacturing industries in Scandinavia. Tietotehdas specialises in the design, maintenance and operation of information systems. It operates primarily in the professional services, processing services and packaged software areas.

The group is organised in six divisions:

- Personnel Systems
- Data Centre
- Financial Systems
- Professional Services
- Standard Software and Solutions
- TT-Trading

During 1990, the group organisation was restructured to correspond to the Group's central strategic areas. The group structure is based on a decentralised, profit centre-based organisation where profit centres operating in the same or in a closely related business area are combined to form business divisions.

In 1991, Tietotehdas withdrew from the hardware market and sold its unprofitable micro-computer business.

**Recent  
Acquisitions**

In September 1990, the data processing operations of Oy Stockman AB were acquired by Tietotehdas.

In December 1990, the business operations of Tietoassa Oy, the EDP service company of the S Group, and its 55 employees were transferred to Tietotehdas.

At the end of 1990, a rationalisation agreement was concluded with the Aamulehti Group. By this agreement the personnel administration operations of Tietovoima Oy and the share capital of Finnish Data Power Oy were acquired by Tietotehdas.

Tietovoima Oy with 45 employees was the second largest supplier of personnel administration systems in Finland after Tietotehdas.

Finnish Data Power, with a staff of 55, was one of the major data centres in Finland.

The agreement with the Aamulehti Group resulted in the Aamulehti Group becoming a shareholder of Tietotehdas.

In 1991 Tietotehdas acquired two distributors of Ingres relational database products in Denmark (Ingres Danmark A/S) and Norway (Ingres Norge A/S), expanding its distribution network to cover all Scandinavian countries. Also in 1991, Tietotehdas acquired 49% of Financial Software Technology Oy.

As part of its focus on core activities Tietotehdas sold a number of its businesses. These include:

- Businessman Oy (micro-computer business)
- Unitema AB (wholesale and retail systems)
- Part of Avorius Oy (Systems for the Construction Industry)
- Datema Timetech AB (Access and Control Systems)
- Data Corporation Oy (Subsidiary of TT Innovation Oy)

## Exhibit A

## OTHER EXECUTIVES

NAME	POSITION
Sture Bellmark	Manager, Personnel Systems
Esko Makinen	Manager, Data Centre
Veli Pohjolainen	Manager, Financial Systems
Pentti Huusko	Manager, Professional Services
Juhani Stromberg	Manager, Standard Software and Solutions
Svein Kockberg	Manager, TT-Trading

During 1991, the group employed an average of 1,557 personnel. The figure at the end of 1991 was 1,454 which represents a decrease of 8% from the previous year.

## Exhibit B

## 1991 EMPLOYEE CHART

DIVISION	NUMBER OF EMPLOYEES
Personnel Systems	203
Data Centre	285
Financial Systems	256
Professional Services	202
Standard Software Solutions	262
TT-Trading	188
Group Functions	63
<b>TOTAL</b>	<b>1,459</b>

## Exhibit C

## SHAREHOLDERS

SHAREHOLDERS	% OWNED	% VOTES
Unitas Bank Ltd. Group	6.8	14.8
Kymmene Corporation	4.5	11.9
Nokia Corporation	9.2	9.3
Suomi Mutual Life Assurance	3.4	8.5
Aamulehti Group	6.4	6.0
Kone Corporation	2.3	5.5
Enterprise-Fennia	2.1	5.4
STS-Bank	2.1	5.4
Tapiola Group	2.1	5.4
Tehdaspuu Oy	2.1	5.4
Others	59.0	22.4

At the end of 1991, the number of shareholders was 4,128.

## Exhibit D

## SUBSIDIARIES

NAME	% OWNED	COUNTRY
Avonius Oy	100	Finland
Avo-Tieto Oy	100	Finland
BaseSoft Team Oy	100	Finland
C And Saa Oy	100	Finland
Connectus Oy	100	Finland
Datema AB	93.5	Sweden
Datem A/S	100	Denmark
Datema Information Ab	100	Sweden
Financial Software Technology Oy	48.8	Finland
Finnish Data Power Oy	100	Finland
Finnsystems Oy	60	Finland
Ingres Finland Oy	100	Finland
Ingres Norge A/S	100	Norway
Multitema AB	100	Sweden
No Limits Oy	100	Finland
Progitur Oy	100	Finland
Tietotehdas Danmark APS	100	Denmark
Totus Oy	55	Finland
TT-Innovation Oy	100	Finland
TT-Microtrading Oy	100	Finland
TT-System Professionals Oy	100	Finland
IT-Training Center Oy	100	Finland

**Key Products and Services**

Tietotehdas is organised in the following six divisions:

- Personnel Systems
- Data Centre
- Financial Systems
- Professional Services
- Standard Software and Solutions
- TT-Trading

**Personnel Systems**

The Personnel Systems Division reported 1991 revenues of FM 112 million and employs 203 staff. It operated through three profit centres--Datema PA AB, TT-Personnel Systems Oy and TT-Timecon Oy.

This division supplies payroll, personnel administration access and time control systems in the Scandinavian countries. It claims to be the leading supplier of personnel administration systems and data centre services in Scandinavia.

**Data Centre**

The Data Centre reported 1991 revenues of FM 179.8 million and employs 285 staff. It is divided into three profit centres--Data Processing Services, Finnish Data Power Oy and Production.

The Data Centre division develops, markets and produces services required in the day-to-day operation of data processing systems.

## **Financial Systems**

The Financial Systems division reported 1991 revenues of FM 130.7 million and employs 256 staff. It is divided into seven profit centres, which are:

- Retail Banking and Payment Systems
- Securities and Finance Systems
- Insurance Systems
- Banking Systems
- Totus Oy
- ASTEC, Financial Software
- Technology Oy

The Financial Systems division specialises in data systems for banks, insurance companies and other companies and organizations in the finance sector. Among its services are systems development and maintenance and integration services of data systems.

## **Professional Services**

The Professional Services division reported 1991 revenues of FM 79.4 million and employs 202 staff. It operated through six profit centres, which are:

- TT-Innovation Oy
- Systems Integration Services
- Customer and Project Services for the Manufacturing industry
- Customer and Project Services for Public Administration

This division is responsible for information technology consulting, the development of data systems for trade, manufacturing industry and public administration, and the integration of different information technology services.

### **Standard Software and Solutions**

The Standard Software and Solutions division reported 1991 revenues of FM 99.7 million and employs 262 staff. It is divided into six profit centres, which are

- Merritt Manufacturing
- Merritt Financial and Accounting
- Merritt Spécial Systems
- Datema A/S
- Basesoft Team Oy
- General Systems

The Standard Software and Solutions division delivers hardware-independent financial and accounting systems and operative business systems for the manufacturing industry in Scandinavia.

### **TT-Trading**

TT-Trading reported 1991 revenues of FM 202.9 million and employs 188 staff. This division operates through eight profit centres, which are:

- AION Products imports AUS, a development tool for knowledge-based systems for IBM/VMS, DOS, OS2, DEC VAX/VMS and SUN Unix environments in Scandinavia
- Ingres Danmark A/S imports Ingres relational database and application development products to Denmark
- Ingres Finland Oy imports Ingres products to Finland
- Ingres Norge A/S imports Ingres products to Norway
- Ingres Sverige AB imports Ingres products to Sweden and Mimer database products to Scandinavia
- OPTIM AB imports products for the optimization of production flow to Scandinavia
- TT-Microtrading Oy imports work station systems and add-on hardware to Finland

- TT-Training which is responsible for product training programmes based on information technology to Finland

The TT-Trading division imports and markets expert tools needed for the design and use of data systems in Scandinavia.

## Market Analysis

### Exhibit E

**1991 MARKET ANALYSIS BY DIVISION (FM MILLIONS)**

DIVISION	REVENUE	PERCENT
Personnel Systems	112.0	14.6
Data Centre	179.8	23.4
Financial Systems	130.7	17.0
Professional Services	79.4	10.3
Standard Software and Solutions	99.7	13.0
TT-Trading	202.9	26.4
Group functions	0.4	0.0
Internal Net Sales	-36.6	-4.7
<b>TOTAL</b>	<b>768.3</b>	<b>100</b>

Note: Internal Sales are included in the above revenue breakdown.

### Exhibit F

**1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
SOFTWARE AND SERVICES (FM MILLIONS)**

DELIVERY MODE	REVENUE	PERCENT
Processing Services	292	40
Turnkey Systems	73	10
Application Software Products	146	20
System Software Products	58	8
Professional Services	146	20
Systems Integration	15	2
<b>TOTAL SOFTWARE SERVICES</b>	<b>730</b>	<b>100</b>

INPUT estimates non-captive software and service revenues totalled FM 730 million in 1991.

Group revenues were FM 768.3 million in 1991 compared with FM 812.7 million the year before. The reduction in revenue was mainly due to the sale of the company's unprofitable hardware business.

## Financial Information

### Exhibit G

#### FIVE YEAR FINANCIAL SUMMARY (FYE 31-12) (FM MILLION)

YEAR	1987	1988	1989	1990	1991
Revenues	472.2	1,003.4	849.1	812.7	768.3
Annual Growth Rate(%)	29%	112%	-15%	-4%	-5%
Profit/Loss before taxes	NA	NA	33.7	36.5	20.9
Profit/Loss after Taxes	NA	NA	33.9	17.6	4.0
Earnings per Share	29.87	-61.41	76.63	-42.99	

## Company Strategies

### (a) Company Direction

The key task of the Tietotehdas Group is to improve the efficiency and results of its customers through the application of information technology. Tietotehdas concentrates on those sectors of EDP services where it can impart the highest professional expertise. In these areas its objectives are to deliver the highest expertise in the market, to command the leading market position in Scandinavia, and to achieve good profitability.

1991 for Tietotehdas has been a year of streamlining its operations and restructuring its business. To secure itself against a recessionary climate and intensifying competitive pressure, the company has decided to focus on its core activities.

The company sees its future in three key areas--personnel systems, data processing systems and banking and financial systems. It has consolidated its operations in these areas and divested itself of a number of businesses and subsidiaries which it felt offered little growth.

The company's strategy for success is to direct resources toward those business operations that are strategic for Tietotehdas and away from those where the opportunities are not sufficient. It recognises the inevitability of full-scale international competition in its operating markets and aims to protect market share by accelerating the structural change of the organisation to a specialised international software and services business.

During 1991, revenues from its key business activities increased by 21%. Tietotehdas acquired companies responsible for marketing the Ingres products in Denmark and Norway, so that its distribution network now embraces all the Scandinavian countries. Also, important contracts for data processing services were signed with the Share Central Register and Helsinki Stock Exchange, cementing its position in the financial sector.

Tietotehdas sees 1992 as a challenging year. Demand is not expected to improve greatly during the year. However, the expansion of market share and corporate acquisitions in the key areas of its business are expected to compensate for the loss of hardware sales and make an increase in revenues possible towards the latter part of the financial year.

Tietotehdas has a strong presence in Scandinavia. Through acquisitions and its distributor network, Tietotehdas has expanded its presence outside of its national market. It currently operates through sixteen subsidiaries in Finland, two in Denmark, three in Sweden and two in Norway.

Tietotehdas has a strong vertical orientation, targeting manufacturing, industry and public administration with particular emphasis on the banking and finance sector. The company's financial systems division focuses specifically on this market offering systems development, systems integration and data processing services.

Tietotehdas is also a leading supplier of IT services for payroll and personnel administration in Scandinavia. Datema Personnel administration AB is responsible for the services in Sweden and IT-Personnel Systems Oy in Finland.

The main challenge facing Tietotehdas will be to replace the lost revenue from its hardware business, which accounted for almost one-fifth of 1990 turnover with revenue from services.

## Conclusions

Tietotehdas reported 1991 revenues of FM 768.3 million compared to FM 812.7 million the year before. The strong reduction in demand for EDP services in Tietotehdas' primary market areas, Finland and Sweden, forced the company to adapt its operations to meet the new situation.

Consolidated profit before taxes reached FM 20.9 million compared with FM 36.5 million during the previous year. The weaker result was mainly due to the losses in hardware sales and the sale of its lack-lustre business operations. Sales of packaged software for the manufacturing industry was also weaker, whereas the result of the Financial Systems Division, payroll systems and EDP tools improved.

Tietotehdas entered 1992 as an economically stronger company. While the group now operates in fewer product areas than before, these areas are geographically more extensive. This concentration on core services should influence the margin ratios of the company in 1992.

## COMPANY PROFILE

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### UNISYS CORPORATION

PO Box 500  
Blue Bell PA 19424  
United States  
Tel: 0101 215 986 6999

Chairman: James Unruh  
Status: Public  
Number of Employees: 60,300  
Revenue (FYE 31-12-91): Worldwide \$8.7 billion,  
Europe \$2.6 billion

Europe Africa Division  
Charter Place  
Vine Street  
Uxbridge, England UB8 1QE  
Tel: 44 (0) 895 237137  
Fax: 44 (0) 895 270355

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### The Company

Unisys was formed in 1986 through the merger of Burroughs and Sperry. The company makes and markets computer-based networked information systems, software and related services on a worldwide basis.

In line with its corporate goal of being a provider of mission-critical solutions, Unisys now focuses its strengths in four strategic market sectors:

- Financial services
- Airlines and Travel
- Telecommunications
- Public sector

These four market segments currently account for over 70% of the company's commercial computer business and generally represent high transaction volume and complex networking environments.

With its headquarters in Bluebell, Pennsylvania, U.S., Unisys is one of the largest information technology companies in the world, employing more than 60,000 people in some 100 countries. 1991 operating revenues were \$8.7 billion of which more than half were sourced from outside the United States. The Pacific Rim, Asia and the Americas account for 21% of revenue, with Europe and Africa contributing an additional 30%. In 1991, its annual engineering, research and development expenditures exceeded \$1 billion.

Unisys, following the merger, was structured to provide better focus and direction to the company's deployment of resources to offer products and services that fulfill the needs of the company's targeted markets. The internally issued doctrine about the merger was not that one company would absorb the other, but that elements of both companies would be retained as building blocks for a new company that would provide products and services that satisfy the needs of the market. The spirit conveyed by the chairman, W. Michael Blumenthal, was one of partnership, merit, unity, and despatch. The partnership was one of two equals being combined. Merit was the basis for staff selection, company procedure, and extracting the disciplines to give Unisys a new and consistent direction.

However, since the merger, the company has faced difficult trading conditions and the need to continue to support and develop two parallel product lines have led the company to experience substantial losses in 1989 and 1990, which in turn have led to redundancies and the sale of the company's Timeplex subsidiary.

In 1991, Unisys carried out an extensive reorganisation plan to tighten its market and product offering focus, and create a cost structure that would sustain profitability and at the same time improve business effectiveness.

## Organisational Structure

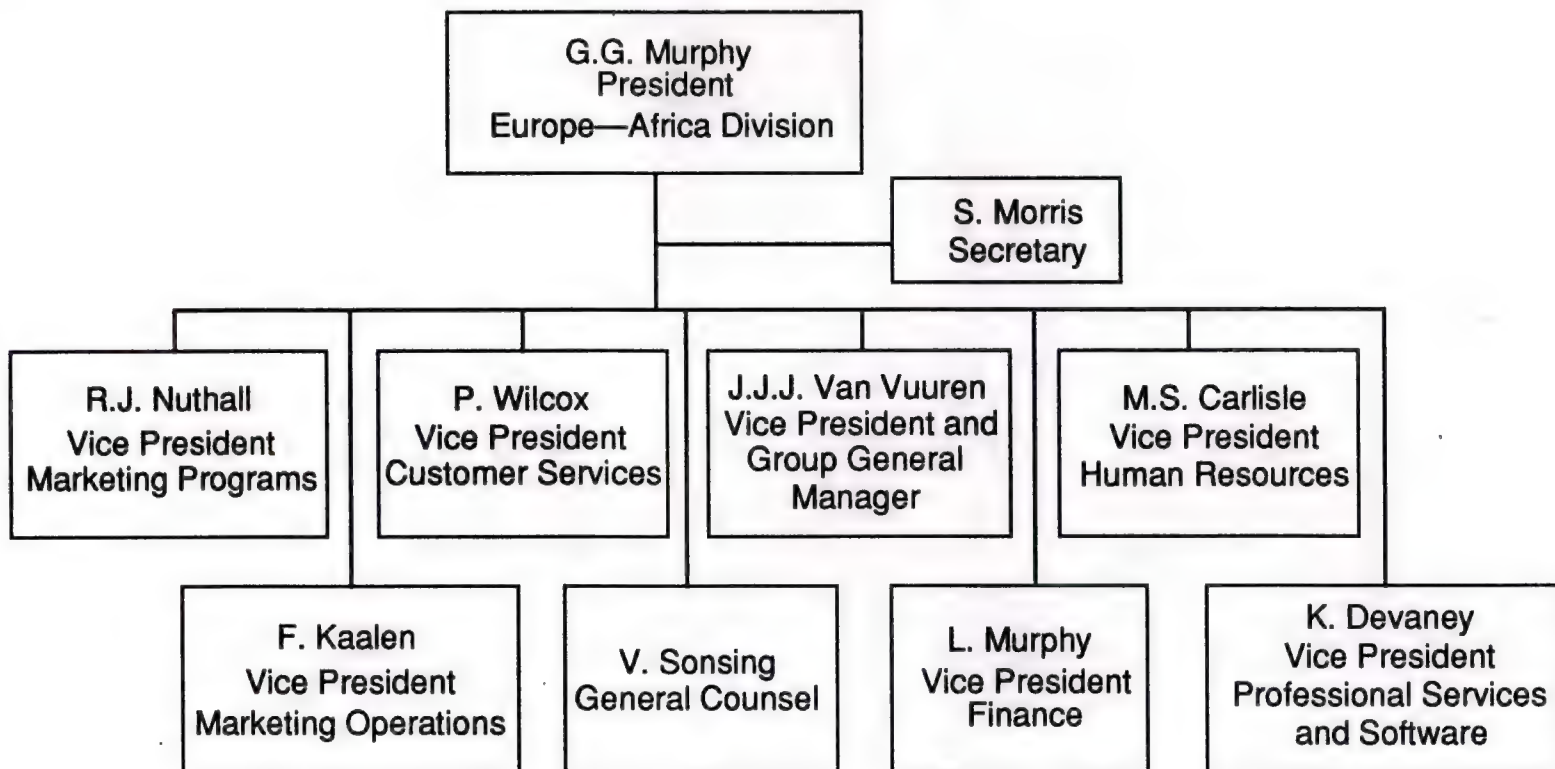
Unisys has three main operating divisions: United States Information Systems (USIS), Pacific Asia and Americas Division (PAAD) and Europe Africa Division (EAD). In addition, Paramax in the U.S. specialises in defence.

The Europe Africa Division is based in Uxbridge, U.K. It acts as the technical and management centre for the 15 operating companies in the division. Despite the inclusion of the African continent, Unisys EAD is predominantly a European organisation. Any business in Africa is coordinated by Unisys World Trade, based in Uxbridge, which is run in the same ways as a subsidiary. Unisys World Trade is the organisation that manages all business done by Unisys through distributors.

The two key executives are James Unruh, Chairman and Chief Executive Officer, and Reto Braun, President and Chief Operating Officer.

The management structure of the Europe Africa Division is shown in Exhibit A. Exhibit B lists the 15 subsidiaries in Europe. Each subsidiary reports through the President of the Division, G. Murphy.

**EAD Executive  
Europe—Africa Division**



## Exhibit B

## UNISYS EUROPEAN SUBSIDIARIES

COUNTRY	HEADQUARTERS
U.K.	Stonebridge Park (North West London)
France	Cergy Pontoise (Near Paris)
Germany	Sulzbach (near Frankfurt)
Italy	Milan
Spain	Madrid
Austria	Vienna
Belgium	Brussels
Netherlands	Amsterdam
Finland	Espoo (Near Helsinki)
Denmark	Copenhagen
Norway	Oslo
Sweden	Solna (Near Stockholm)
Switzerland	Thawil (Near Zurich)
Portugal	Lisbon
Unisys World Trade	Uxbridge (West London)

**(b) Acquisitions**

In January 1988, the company acquired Timeplex, Inc. a supplier of wide area voice/data/image communications networks, which was subsequently divested in 1991.

In December 1988, Unisys acquired Convergent for approximately \$350 million.

**(c) Major Recent Projects**

Examples of solution-based projects recently carried out by Unisys are the following:

- Skipton Building Society (U.K.)

The Skipton Building Society needed to speed up its home mortgage processing operation. Using its LINC advanced software tool, Unisys worked with Skipton to develop the Unisys Financial Services System (UFSS). The solution that runs on Unisys' A series mainframe platforms has helped Skipton to improve customer service and achieve a high growth rate.

Following the development of UFSS for Skipton, 13 U.K. financial institutions purchased the systems.

- United Airlines (Chicago)

United Airlines wanted their cargo customers to have more control over their shipments on United aircraft. Using its MAPPER software development tool, Unisys delivered, in 6 months, a solution called Cargo Plus 1. The system, which runs on an open UNIX platform, allows freight forwarders to tap into United's central database to make cargo reservation, track shipments and complete other tasks in real time.

- Federal Aviation Administration (New York)

The Federal Aviation Administration (FAA) needed to expand an existing air traffic control system used to track flight arrivals and departures at 50 airports in a 70 mile radius. In 1991, the enhanced Radar Terminal System (ARTS) II E went into operation, and has doubled-tracking capacity and eliminated flight delays due to computer overload.

Other past projects carried out by Unisys include:

Crown Prosecution Service (U.K.)—Tracking case progress

Frankfurt International (Germany)—Air Traffic control Airport

RTC Group (Switzerland)—Major networking projects

Royal Navy (U.K.)—Data Communications network for supply and transport services

Post Office (France)—Distributed network with OSI capability

Ministry of Agriculture, Fishery and Food (Portugal)—Fishing control and protection

## Key Products and Services

### (a) Technologies

Like many of the equipment vendors, Unisys sees its commitment to open systems as critical to its future development, and the organisation has built up considerable expertise in open systems network integration.

Unisys believes that users are no longer looking for vendors to build them single application solutions. Customers' requirements are becoming more complex and frequently involve a considerable communications element. This is because interoperability is becoming one of the key driving forces. Users frequently have a range of applications running on heterogeneous equipment and need either to integrate these applications, or at least provide more widespread access to them. Though one solution to this problem would be to standardise on a single vendor's equipment, Unisys believes that a better approach is to implement an intelligent open systems network that links new systems and existing applications.

The benefits of this approach are listed below:

- Protection of current investment in systems and information
- An open infrastructure is established onto which new applications can be added or "old" systems replaced.
- Future IS investment is protected.

In Unisys' experience, the existing applications already implemented within a company are likely to be based on a wide range of heterogeneous equipment covering a number of suppliers. The heterogeneity introduced by linking existing systems far outweighs that introduced by the introduction of new systems. However, another advantage of Unisys' approach is that it enables users to continue to use proprietary architectures, where appropriate, within an open framework because many true open systems still lack the power and sophistication of proprietary systems. Therefore, the user's move to open systems can take place more gradually and in a controlled manner.

An example of such a project providing users with access to applications spread across a range of proprietary and UNIX systems is the REDACS (Regenerated Data Communications) project. This project required the supply, implementation and maintenance of a data communications network for the Royal Navy Supply and Transport Service. Initially, this involved linking 40 sites and 2,000 devices, expanding to 5,500 devices by 1995.

**(b) Industry Knowledge**

As a corporation, Unisys has always had a high degree of vertical orientation. Seventy-five percent of revenue in its commercial business comes from four large and highly transaction-intensive markets:

- Financial services
- Airlines and travel
- Telecommunications
- Public sector

Unisys also has a substantial presence in a number of other industries including manufacturing, distribution and publishing.

In addition, its Paramax subsidiary is a leading supplier of complex electronic systems for civil and defence agencies of the U.S. Government and allied foreign government agencies.

Unisys aims to build on its success in these markets and is focusing its resources on developing solutions for them.

During 1991 and 1992, Unisys performed extensive customer research into its existing and planned services offerings. The results of this work showed that the quality of existing services was felt to be good, but frequently customers' true needs were not being met. Unisys was seen as a hardware, mainframe-oriented vendor. The company was not seen as being particularly strong in services, despite the fact that almost half its revenues came from this source. Customers felt that the services offerings were not always relevant to their needs, and that, through having a number of delivery channels, it was not always easy to deal with the company.

As a result of this research, the Unisys totality service was launched, initially in the U.K. in April 1992; it was rolled out in Europe in November 1992. Unisys' totality service is designed to provide "comprehensive service to make information systems more effective". Unisys' totality service integrates Unisys' service offerings into a portfolio structured to provide flexible services tailored to customers' business requirements.

The first major difference between totality and the previous services is that there is no mention of delivery channels. Previously, like many of its competitors, Unisys had used the terms customer services and professional services to describe its service organisations. The second difference is that the services are grouped into three new categories:

**1. Planning and achieving strategic goals**

- High-level consultancy and planning
- Project-based services

## 2. Realising solutions

- Applications development and implementation
- Multivendor systems integration
- Outsourcing
- Network services
- Education
- Environmental services

## 3. Effective day-to-day operations

- Systems service and support
- Disaster recovery
- Performance management

### High-level consultancy and planning

These services are aimed at senior business managers. The emphasis is on understanding business needs and translating these into information systems strategies that work. Unisys is doing this more frequently in partnership with IT consultancies, such as Coopers & Lybrand. Unisys enterprise information technology planning (EITP) helps companies integrate their individual islands of information technologies.

### Project-based services

A large number of services are project-based to reflect the need to be customer focused, and also to ensure that the solution is created by Unisys personnel with the appropriate skills. Unisys takes complete accountability for delivery of the total solution.

### Applications development and implementation

Unisys' applications solutions planning is a high-level consultancy service designed to match systems software to true business needs.

### Multivendor systems integration

Unisys hardware is frequently found by independent analysts to be particularly "open". Unisys recognises that this is a source of strength and has built an organisation to ensure that Unisys hardware and software can be seamlessly integrated with those of other vendors. The services include: consultancy and project management, provision of total turnkey solutions and multivendor systems integration.

### Outsourcing

Outsourcing is a key strategic service for Unisys. The company has the capability to provide outsourcing services across the full spectrum of user requirements from facilities management of data processing to the total ownership and management of information technology. Unisys has a track record of over 30 years in this field.

### Exhibit C

#### FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (\$ MILLIONS)

YEAR	1987	1988	1989	1990	1991
Revenues	9,732	9,935	10,097	10,111	8,696
Annual growth rate (%)	31	2	2	0.1	(14)
Profit before taxes	951	959	(554)	(337)	(1,288)
Profit after taxes	578	681	(639)	(437)	(1,393)
Annual growth rate (%)	1,430	18	(194)	32	(219)

Exhibit D shows the key financial ratios for Unisys.

### Exhibit D

#### KEY FINANCIAL RATIOS

	1987	1988	1989	1990	1991
Revenue per employee (\$'000s)	105	107	123	134	144
Profit per employee (\$'000s)	12.1	11.9	(2.6)	(0.6)	(21)
Return on sales (%)	11.5	11.1	(2.1)	0.4	(6.6)
Return on capital employed (%)	16.1	13.8	(2.9)	0.7	(12)

The profit figures used to calculate the financial ratios in Exhibit D are the operating profits (losses) prior to interest and tax charges.

**Market Analysis**

Exhibit E provides the current revenue breakdowns by region and Exhibit F indicates INPUT's estimate of Unisys' software and services revenues by country in Western Europe.

**Exhibit E****1991 REVENUES BY REGION (\$ MILLIONS)**

REGION	REVENUES	PERCENT
United States	4,265	49
Europe	2,602	30
Americas/Pacific	1,829	21
TOTAL	8,696	100

**Exhibit F**

**1991 REVENUES BY COUNTRY (\$ MILLIONS)**  
**EUROPEAN, SOFTWARE AND SERVICES REVENUES**  
**INPUT ESTIMATE**

COUNTRY	REVENUES	PERCENT
France	236	17
Germany	151	11
U.K.	297	21
Italy	105	8
Netherlands	118	9
Belgium	60	4
Spain	101	7
Switzerland	132	9
Austria	24	2
Sweden	62	4
Denmark	25	2
Norway	10	1
Finland	30	2
Ireland	16	1
Other	28	2

Exhibit G provides Unisys' revenues by product class and Exhibit H contains INPUT's estimate of Unisys' Western European software and services revenues broken down by delivery mode.

#### Exhibit G

##### 1991 REVENUES BY PRODUCT CLASS (\$ MILLIONS)

PRODUCT CLASS	REVENUE	PERCENT
Mainframes and peripherals	2,028.9	23
Departmental servers and workstations	1,251.51	5
Software and related services	1,824.9	21
Equipment maintenance	1,844.4	21
Custom products & services	1,574.3	18
Other	172.1	2
TOTAL	8696.1	100

#### Exhibit H

##### 1991 REVENUES BY DELIVERY MODE (\$ MILLIONS) EUROPEAN SOFTWARE AND SERVICES REVENUES (INPUT ESTIMATE)

DELIVERY MODE	REVENUES	PERCENT
Software Products	295	44
Professional Services	320	48
Systems Integration	55	8
TOTAL	670	100

Unisys' current focus is to specialise in providing mission critical solutions, based on open information networks, for organisations that operate in transaction-intensive environments such as banks, insurance companies, airlines, telephone companies and government agencies. As a result of this focus, INPUT estimates Unisys' European software and services revenues to be broken down by industry, as shown in Exhibit I.

## Exhibit I

**1991 SOFTWARE AND SERVICES REVENUES BY INDUSTRY SECTOR  
EUROPEAN, INPUT ESTIMATE  
(\$ MILLIONS)**

SECTOR	REVENUES (\$ MILLIONS)	PERCENT
Discrete Manufacturing	55	8
Process Manufacturing	35	5
Transportation	10	1
Utilities	10	1
Retail Distribution	30	4
Banking and Finance	345	51
Insurance	30	4
Local Government	30	4
National Government	100	15
Business Services	25	4
Total Software and Services	670	100

## Company Strategies (a) Company Direction

Unisys sees its future as:

- A company based on solutions
- A company focused on dynamic technologies for high-growth markets
- A company that builds partnerships
- A company singularly dedicated to quality and customer satisfaction

Unisys is focusing on developing its "value-added" software and solutions. Unisys aims to provide flexible software that meets specific customer needs such as its Informage cheque imaging system and its network applications platform solution for enhanced telephone services.

The company also aims to offer professional services that help customers maximise the return from their investment.

Unisys' research and development is focused on its overall computing architecture, the Integrated Information Environment (IFE). The company is delivering platforms networking products and professional services that customers need to build an integrated information environment.

Unisys is focusing on forming partnerships with other vendors. The company is actively seeking industry leaders whose expertise complements Unisys' core strengths. The company has already formed partnerships with KPMG Peat Marwick, Coopers & Lybrand and Deloitte Touche in business consulting, and with Intel and Motorola in chip technology.

Finally, Unisys wants to be a company singularly dedicated to quality and customer satisfaction. Its goal is to achieve total customer satisfaction by delivering error-free, competitive solutions on time, with service second to none.

#### **(i) Consulting**

Unisys realises the need to build its consulting expertise by forming alliances with companies that are industry leaders. It has therefore formed partnerships with KPMG Peat Marwick and Coopers & Lybrand.

The focus will be on providing strategic planning software and services, which will help customers quickly and effectively plan, develop and implement computer applications that closely support corporate business goals.

#### **(ii) Geographic Coverage**

Unisys' geographic coverage is very strong in covering the major national markets. The company has subsidiaries in 15 countries, as listed earlier.

#### **(iii) Partnerships**

To some degree, Unisys utilises alliances in most of its activities. One area in which alliances are seldom, if ever used, is service and repair. The areas in which alliances are most likely to be used are business consulting, design, packaged applications software, and custom and communications hardware. Long-term relationships seem to be focused on OEM hardware and software.

**(b) Strengths and Weaknesses**

INPUT's evaluation of Unisys' capabilities is high. The primary weak spots appear to be in business consulting, and these can be overcome by judicious use of alliances and utilisation of industry strength from the various "lines of business" organisations supporting its traditional business. In addition to its general capabilities, Unisys has a number of unique capabilities that support entry into its desired market niches, including:

- Industry-specific software for finance, manufacturing, communications, and the public sector
- Connectivity products, including network processors, timeplexing systems, and software products to support SNA, NET, and OSI
- Proprietary and alliance-provided network management products to support a variety of network architectures
- A substantial installed base, particularly in the minicomputer market

Unisys has particular strength in certain industry segments such as banking. Emphasis is specifically on interbank networking systems (S.W.I.F.T.), document processing systems and retail distribution systems, manufacturing engineering applications, transportation (reservation, air cargo), communications (telephone billing), and state and local governments (police information, on-line management systems and court management systems).

Though each of these areas was a speciality of one of the two merger partners, the new Unisys company has taken this industry expertise and cross-trained the sales and marketing personnel to provide a more uniform approach to the competitive marketplace.

Unisys' commitment to open systems is also a major strength in the systems integration market, as is its experience in open systems network integration.

Two strengths that assist CSO in differentiating itself from the major professional services vendors are its wide European coverage and the organisation's access to those equipment and systems software customisation skills, normally associated with an equipment vendor.

Even though CSO might be seen by potential customers to lack independence in equipment choice, CSO will use other vendor's equipment where it believes that it is better suited to handle the task. To assist CSO in maintaining its independence, its revenues are not included in the target set for each national Unisys subsidiary. However, the "line of business" salesman is paid a bonus for assisting in the development of a systems integration sale.

### **(c) Conclusions**

INPUT believes that like most hardware vendors, Unisys is fully capable in the technical arena and has its biggest hole in the area of business consulting. Clearly, the strong vertical focus of the traditional business can provide support in that area, particularly for commercial systems integration.

A key move in addressing the issue has been the formation of alliances with leading management consultancies whose business expertise complements Unisys' core technical strengths.

### **(d) Strategic Assessment—Unisys**

Stringent cost cutting and the disposal of certain assets allowed Unisys to record an operational profit in the final quarter of 1991. However, it still faces probably the greatest challenges of all the remaining 'full-line' system vendors in surviving the transition into the market conditions of the 1990's.

In 1990, Unisys announced its architecture for achieving open systems integration across its product range—the integrated information environment—the purpose of which was to enable clients to develop open multivendor information networks.

Like a number of equipment vendors including Bull and ICL, Unisys will target its competitors' major accounts with open systems solutions and open systems networking.

One of Unisys' key strategies for improving market acceptance through the development of software and services business was its complex systems organisation (CSO). Set up in Europe in 1988, it failed to develop quickly enough to become a significant operating unit in its own right and now operates as an arm of its professional services business.

The company is now devoting 85% of resources to increasing its business and market share within its installed customer base. Unisys hopes to achieve this by developing solutions for selected markets, financial services, Airlines and Travel, Telecommunications and the Public Sector, in which 75% of commercial business revenues are generated.

In other sectors, which are not highly transaction intensive, Unisys is concentrating on building partnerships with leading solutions providers to give its customers access to applications that they can use on Unisys' platforms.

By taking this approach, Unisys hopes to present itself to its customer base as a company with flexible software that meets specific needs and with professional services that help customers maximise the return from their investment.

## COMPANY PROFILE

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### **VOLMAC SOFTWARE GROEP N.V.**

Daltonlaan 300  
P.O. Box 2575  
3500 GN Utrecht  
The Netherlands  
Tel: 31 30 52 65 26  
Fax: 31 30 54 31 43

Chairman: G.G. Dohmen  
President: R. van Ommeren  
Status: Public  
Number of Employees: 3,206  
Revenue (FYE 31-12-91): DFL 598.4 million

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### **The Company**

Volmac Software Groep (VSG) has its origins in Automation Centre Volmac, formed in 1966 by Mr. Mol and Mr. van Oosterom.

In 1988, Volmac Software obtained a listing on the Amsterdam Stock Exchange. Since March 1990, the company has been classified among the 40 most actively traded stocks.

The group consists of 24 operating companies and at December 31, 1991, had 3,206 employees.

These companies are independent units operating under strategic guidelines. Volmac describes its overall activities as providing professional services in the fields of computer software and information technology with the emphasis on custom software development.

The group companies serve a variety of market segments. Some companies are thought of as "all rounders", others are highly specialised. A number operate as system houses, supplying both hardware and software. Others confine themselves to the supply of specific know-how, facilities and/or support services.

VSG's core business is delivering custom solutions in information technology, from the planning stage (management consultancy) through development and design to system management and operation (facilities management), with the emphasis on quality, dependability, commitment, technical skill, expert knowledge, project management experience and systems integration.

Services supplied relate to the following:

- The function of information technology as part of an organisation's overall strategic plan
- The design framework or architecture of information systems
- Custom designed information systems
- The supply and customisation of packaged software
- System implementation and installation
- Training
- Maintenance and/or modification of information systems
- Operation and management of systems and/or networks.

The group is one of the leading systems integration vendors in the Netherlands and sees its major opportunity for growth as developing systems integration and providing total solutions. The group's policy aims at expansion of both its Dutch and its international market positions.

An agreement was reached in early 1992 between Cap Gemini Sogeti, European leader in computer services and consulting, and "The World Software Group" (WSG), principal shareholder of Volmac. Under the terms of the agreement, the two organisations will form a joint company (Newco), to which will be contributed their stakes in Volmac, and in Cap Gemini Pandata and Cap Gemini Belgium, respectively. No take-over bid is planned or anticipated on the remainder of Volmac's shares, which will continue to be quoted on the stock exchange.

Cap Gemini Sogeti will be the majority shareholder in Newco, which will in turn hold the majority shares in the newly formed ensemble. This new company will combine a total workforce of more than 4,000 professionals in Benelux, with 1991 revenues of the order of 900 million florins (\$500 million) forecast.

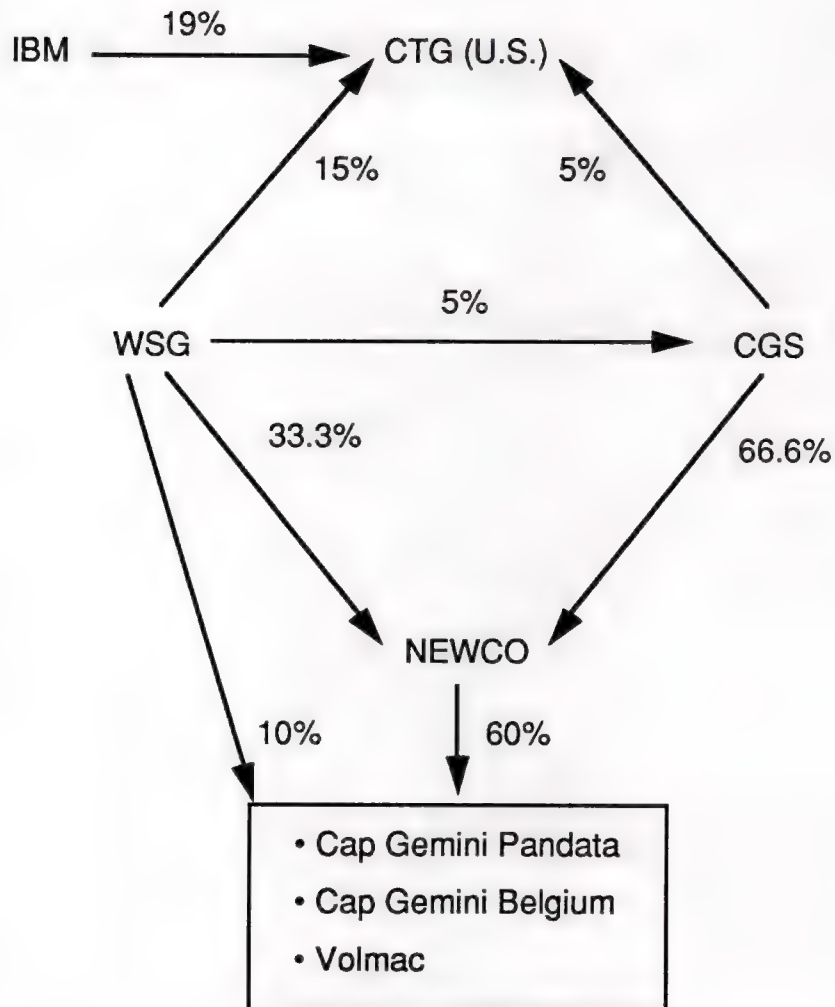
Under the aegis of Cap Gemini Sogeti (CGS), the realignment of these two entities aims to

- give Volmac and its clients access to an international network of expertise and skills unequalled in Europe;
- develop consulting and facilities management activities in Benelux by tapping the resources of Gemini Consulting and Hoskyns;
- bring the newly created enterprise to the position of undisputed information technology (IT) leader in Belgium and the Netherlands.

The ownership of Volmac and the newly formed Newco - the joint venture company formed by World Software Group (WSG) and CGS - is shown in Exhibit A.

## Exhibit A

## OWNERSHIP OF VOLMAC



## Organisational Structure & Acquisitions

### (a) Organisation Structure

The consolidated group companies, as at December 1991, are listed in Exhibit B.

#### Exhibit B

#### VOLMAC GROUP COMPANIES

COMPANY NAME	PERCENT OWNERSHIP
Volmac Nederland BV	100
Brainforce BV	100
Console BV	100
Gimbrere en Dohmen Software	100
NV Gitek Software	100
Open-i Software BV	100
Profix BV	100
Sovac Automatisering BV	100
Volmac Assurantien BV	100
Volmac Development Tools BV	100
Volmac Facility Centre BV	100
Volmac Marketing & Management BV	100
Volmac Nederland BV	100
Volmac Software and Training (Belgium)	100
Dataprocess Belgium NV	100
Desisco Holding BV	100
Interprogram BV	100
Bolesian Systems Europe BV	51
Cyclade Consultants vof*	50
Twinac Denmark A/S	50
Twinac GmbH Gesellschaft fur Software-entwicklung*	50
Twinac Limited (UK)*	50
Twinac Software BV	50
VGIS BV	50

\* consolidated on a pro rata basis.

The following is a description of the main companies in the group and the services they provide:

- **Bolesian** - operates in the artificial intelligence field. The company builds knowledge systems, integrates artificial intelligence technology with existing corporate automation systems and provides training.
- **Brainforce** - supplies consulting and support services for clients in the development of information and data management.
- **Console** - develops and supplies standard applications (mainly for fashion retailing and distribution), carries out custom software projects and provides courses and consulting services.

- **Cyclade Consultants** - a joint venture with IBM Nederland, which supplies consulting and support services to organisations in the application of AD/Cycle, the IBM platform for systems development and also provides training courses.
- **Dataprocess Belgium** - designs, builds and implements software systems on mainframes and midrange configurations. The company also supplies consulting services for the solution of management and technical problems.
- **Desisco** - operates as a consulting and software house and a training institute for commercial and government information systems, specialising in medium-sized IBM systems.
- **G&D Software** - carries out projects and supplies services in the fields of administrative automation and system programming. The services cover all stages of the system development process. A special service is GO Management, a combination of know-how and experience in automation processes, computer technology and management processes.
- **Gitek Software (Belgium)** - a software house specialising in consultancy and custom software contracts in database support environments, mainly on IBM mainframes, IBM midrange and Digital hardware.
- **Interprogram** - specialises in designing, building and implementing systems on a time-and-materials basis or on the basis of a fixed price for each "function point". To achieve this, the company developed the Interprogram function point analysis system. Its subsidiary Software Control operates in the areas of EDP audit and quality control. The IP Software Engineering subsidiary specialises in reverse engineering while the User Guide subsidiary offers support services for organisations in the introduction of computerised information systems. The IP Informatica Groep also acts as a systems integrator.
- **Open-i Software** - a software house which supplies open software only, i.e. software which is not hardware-dependent. The activities mainly involve assisting UNIX users at all stages of the systems development process.
- **Profix** - develops software projects on fixed-price/fixed-date terms. This often involves systems integration in networks. The company also organises computer training courses for professionals and end users and supplies packaged software for standard applications.

- **Sovac Automatisering** - specialises in management and information services for organisations responsible for implementing statutory and incremental social insurance, health care and pension schemes.
- **Twinac Software** - a Dutch joint venture with computer supplier Tandem; supports users of Tandem computers, develops software for them and supplies training courses. Joint ventures with Tandem also operate under the Twinac name in Germany and the U.K., offering the same package of services as Twinac Software in the Netherlands.
- **VGIS BV - VIGIS**, a joint venture with IBM Nederland, offers a range of products and services in the field of Geographical Information Services (GIS). The VIGIS range comprises consulting services, supply and modification of basic applications, custom-designed solutions, conversion services, hardware supply and installation and all related services.
- **Volmac Assurantien** - supplies advice and services in the areas of mortgages, insurance, pensions, finance and property transactions for group companies and staff.
- **Volmac Development Tools** - specialises in computer aids for the development of information systems. The company sells software development tools and supplies support services for their application.
- **Volmac Facility Centre** - concentrates on the acquisition, operation and management of existing infrastructures in information systems, computer systems and networks, through facilities management and data processing services.
- **Volmac Marketing & Management** - an interim management agency which carries out assignments independently or in cooperation with other group companies.
- **Volmac Nederland** - the largest of the group's subsidiaries, specialises in managing, carrying out and supervising automation processes from start to finish. The company offers a range of services for large to very large clients and the larger projects. These services are distinguished by a strong market orientation and are organised to ensure that complete, integrated client information supply systems can be implemented. The company has a range of in-house specialisms and works closely with other companies in the group.
- **Volmac Software & Training (Belgium)** - offers the same service package for Belgium as Volmac Nederland offers in the Netherlands.

**(b) Acquisitions**

During 1991, Volmac Software Groep increased its interest (from 80% to 100%) in the following companies:

- Dataprocess Belgium N.V.
- Desisco Holdings B.V.
- Interprogram B.V.

In 1991 Volmac entered into two joint ventures with:

VIGIS B.V. in the Netherlands. In April, Volmac entered into a 50/50 joint venture with IBM; the new company specialises in geographical information systems.

Twinac Denmark A/S. Volmac's partnership with Tandem was further extended and the fourth Twinac joint venture (the other Twinac companies are in Germany, Holland and the U.K.) was formed with the acquisition of a Danish software house.

In addition, a number of investments were sold or terminated in 1991:

- The 49% interest in Maatschappij voor informatica Deinsten B.V. (MID) was sold in the second half of the year to N.V. RCC, in view of the increased duplication by MID of activities performed elsewhere in the group;
- The 50% holding in Internet Consulting Services Ltd., was sold to the co-shareholder in this company, Internet Systems Inc. because the activities of Internet Consulting Services were becoming more and more interwoven with those of Internet Systems;
- Persistent large losses and organisational difficulties led to the decision to terminate the activities of Instituut voor Computer Software (ICS) Holding B.V.;
- The 50% interest in Insurance Systems Nederland V.O.F. was sold to the insurance company Aegon Nederland N.V., the partner in Insurance Systems Nederland;
- It was announced after the end of the financial year that the 20% interest in The World Software Group B.V. had been sold. This transaction has been incorporated into the 1991 figures and has not led to any book profit or loss.

## Financial Information

A five-year financial summary for Volmac is shown in Exhibit C, and the key financial ratios in Exhibit D.

### Exhibit C

#### FIVE-YEAR FINANCIAL SUMMARY FOR VOLMAC GROEP (FYE 31-12) (DFL MILLIONS)

YEAR	1987	1988	1989	1990*	1991
Revenues	432.1	516.6	543.6	578.2	598.4
Annual Growth Rate (%)	20%	20%	5%	6%	3%
Profits after Taxes	94	115	101.9	80.7	74.9
Annual Growth Rate (%)	22%	22%	-11%	-21%	-7%
Earnings per Share	3.62	4.44	3.82	3.03	2.76
Annual Growth Rate (%)	22%	23%	-14%	-21%	-9%

\*Since the results of Instituut voor Computer Software (ICS) Holding B.V. company are no longer consolidated in profit and loss account with effect from 1991, figures for 1990 have been restated to provide comparability.

### Exhibit D

#### KEY FINANCIAL RATIOS

	1987	1988	1989	1990	1991
Revenue per employee (DFL 000's)	193	201	183	177	180
Profit per employee (DFL 000's)	71	74	51	37	31
Return on sales (%)	36.7	36.9	28.2	21.1	17.1

**Market  
Analysis**

Exhibits E to I provide breakdowns of Volmac's 1991 revenues by delivery mode, industry, and geographic area.

**Exhibit E**

**1991 MARKET ANALYSIS BY DELIVERY MODE (DFL MILLIONS)  
(VOLMAC CLASSIFICATION)**

DELIVERY MODE	REVENUE	PERCENT
Custom Software/Consultancy	538.0	89.9
Training	27.5	4.6
Facilities Management/DP Services	20.4	3.4
Package Software Sales, Hardware Supplies, and Other Activities	12.5	2.1
<b>TOTAL</b>	<b>598.4</b>	<b>100</b>

**Exhibit F**

**1991 MARKET ANALYSIS BY INDUSTRY SECTOR (DFL MILLIONS)  
(VOLMAC CLASSIFICATION)**

INDUSTRY SECTOR	REVENUE	PERCENT
Trade (Retail and Distribution), Industry (Manufacturing, etc.) and Services	218.0	36.4
Banking and Insurance	207.9	34.7
Public Authorities	114.1	19.1
Non-Profit	58.4	9.8
<b>TOTAL</b>	<b>598.4</b>	<b>100</b>

**Exhibit G**

**1991 MARKET ANALYSIS BY GEOGRAPHIC MARKET (DFL MILLIONS)**

COUNTRY	REVENUE	PERCENT
Netherlands	530.7	88.7
Belgium	48.2	8.0
Rest of Europe	19.5	3.3
<b>TOTAL</b>	<b>598.4</b>	<b>100</b>

## Exhibit H

1991 MARKET ANALYSIS BY INPUT DELIVERY MODE  
(\$ MILLIONS)

DELIVERY MODE	REVENUE	PERCENT
Software Products	5	1
Professional Services	325	93
Systems Operations	10	3
Systems Integration	10	3
<b>TOTAL</b>	<b>350</b>	<b>100</b>

## Exhibit I

## 1991 MARKET ANALYSIS BY GEOGRAPHIC REGIONS (\$ MILLIONS)

COUNTRY	REVENUE*	PERCENT
Germany	4	1
Netherlands	315	90
Belgium/Luxemburg	26	7
Switzerland	4	1
Other Europe	2	1
<b>TOTAL</b>	<b>350</b>	<b>100</b>

*Data may not add to total due to rounding.*

\*INPUT estimate

**Company Direction** Volmac's declared aims are

- to build and maintain a group of companies that is capable of meeting the demand for total solutions, system integration, specialists and specific services;
- to adapt its range of services continuously to the developments taking place within the market by repositioning operating companies in the market and undertaking research and development projects relating to advanced tools, methods, techniques, and development platforms;
- to market packaged software that is suitable for the international market;
- to enter into strategic partnerships with clients and other suppliers or service-providers, relating to co-operation in specific fields of research or market segments;
- to adapt and update on a continuous basis the range of training courses offered, both internally and in the market;
- to meet the market's demand for services in which an understanding of the client's business is a major element of added value;
- to provide product support by establishing "competence centres" or by entering into partnerships;
- to strengthen its positions in international markets by acquisition, by entering into partnerships, by establishing and developing its own offices or operating companies.

**(a) Repositioning of the Group:**

Within the framework of the strategy outlined above, VSG announced a radical structural reorganisation in September 1991 affecting a number of companies belonging to the group. These changes are due for completion during the course of 1992. The following companies will be committed to this process: Brainforce, Desisco, Open-i, Profix, Volmac Facility Centre and Volmac Nederland; these companies will be integrated into one new organisation, Volmac Nederland B.V.

VSG's subsidiary Sovac Automatisering B.V. will not be integrated but will operate as an independent business unit, focusing on the social security sector.

Summarising, the new Volmac will differ in three areas from the old operating structure:

- Concentration of clients' business knowledge within eleven market sectors;
- Pooling knowledge and expertise in the field of information technology in over 30 expertise centres;
- Introduction of an internal supply and demand mechanism.

Both the market sectors and the expertise centres are small, competitive units which carry a high level of management and result responsibility.

Prior to the company's merger with Cap Gemini Sogeti, Volmac planned to achieve an average organic growth of around 10% a year. This target is now likely to be reappraised. In particular, the new joint company formed from Volmac, Cap Gemini Pandata, and Cap Gemini Belgium will be seeking to become the leading supplier of both software and services and systems integration in Benelux. The joint venture company will also seek to establish a strong position in systems operations in this region. In addition, the company will be expected to participate increasingly in pan-European projects with other subsidiaries of Cap Gemini Sogeti.

International expansion is strategically important to the group, both to sustain growth and as a response to the market's growing demand for services on an international scale.

Volmac will increasingly focus on both systems operations and systems integration. The company perceives that the demand for a 'total' service is increasing. In addition, an increasing number of companies are considering contracting out not only the development, but also the maintenance, management and operation of systems (facilities management).

There is also an increasing demand for project teams, in which the supplier assumes (a proportion of) the responsibility for a project and sometimes for the end result as well. In many cases, customers wish to see their supplier as a partner with whom they can establish a close working relationship over an extended period of time.

Volmac recognises the importance of partnerships with equipment suppliers and consultants to succeed in this market-place and is now likely to follow the pattern of partnerships established by CGS.

Volmac also recognises that industry-specific capability is critical to success in the European market and has organised Volmac Nederland into market sector units to enhance the company's capability and visibility at the industry sector level.

Prior to the company's merger with Cap Gemini Sogeti, Volmac gave a high priority to developing its own industry-specific application software products. However, the company now recognises the need to market such products internationally and its own limited success in this area. Accordingly, it is possible that the company will now place less emphasis on these activities and concentrate instead on developing partnerships with leading application software products vendors including those with whom CGS already has close ties.

Finally, Volmac perceives that research and development comprises an element that is essential to its services, in both the short and long term. The group's efforts in this area have been intensified in recent years. Volmac is currently participating in a number of advanced research programmes at European level. Its research and development activities are concerned with such areas as new system development platforms and tools and packaged software.

(i) Consulting

Volmac does not currently offer business consulting, other than the limited capability within its industry-specific business units.

However, the company's recently formed relationship with Cap Gemini Sogeti will enable Volmac to take advantage of Gemini Consulting's capabilities in the future, which can be expected to considerably assist Volmac's generation of systems integration business in the Benelux region.

(ii) Geographic Coverage

In 1991, 89% of the group's revenues were derived in the Netherlands, with another 8% from Belgium.

Volmac intends to further expand its position in the Belgian market, so that in time the company will be able to offer the same range of services and products as in the Netherlands. Outside Benelux, the company envisages partnerships or joint ventures to exploit specialist know-how as a means of achieving growth. Volmac intended to achieve further internationalisation in close cooperation and consultation with The World Software Group, and, to a large extent, this objective has been achieved by Volmac's recent association with Cap Gemini Sogeti. This partnership should also lead to a considerable strengthening of the company's position in the Belgium market.

### (iii) Current Partnerships

Volmac Software Groep companies work independently of hardware manufacturers. Establishing separate joint ventures with particular hardware companies - Tandem and IBM - emphasises the group's conscious choice to operate independently of hardware manufacturers.

Cyclade Consultants is a joint venture with IBM, essential for taking stock of the strategically important potential of CASE tools within the systems development standard AD/Cycle. It also allows for the dissemination of the acquired knowledge and experience in the form of consultancy, training and implementation.

Joint ventures have been established with Tandem Computers in the Netherlands, Germany, the United Kingdom and Denmark under the name of Twinac. Tandem computers have a special concept which makes them particularly suited to sectors where nonstop availability of equipment and applications is essential. The Twinac companies know what standard software is available and also have the specialised knowledge necessary to develop software specifically for these machines.

## (b) Key Technologies and Skills

### (i) Technologies

Research and development, including the maintenance and upgrading of existing products and services, equaled 122 man-years against 126 man-years in 1990. The R&D efforts were targeted towards packaging software (32 man-years) and a great variety of research into developments both in technology and in the market (60 man-years).

A lot of attention was focused on the further development of the system development platforms ESDF (for mainframes) and VTM (for UNIX environments).

In addition to these activities, VSG continued their research activities on behalf of third parties, in particular for Vleermuis Software Research. The research was mainly directed towards 'client server' techniques, 'object oriented' development techniques and management support tools.

In conjunction with companies, research institutes and universities throughout Europe, Volmac participated in a number of international research projects, with the European ESPRIT programme being of particular importance. During 1991, Volmac acted as project leader on research projects in the following areas:

- System development techniques (EUROMETHOD);
- Budgeting and management of automation projects (MERMAID);
- Computer-integrated building (CIB).

VSG is actively involved in the definition of new European research projects, such as the pan-European applications and networks projects (ENS and TEN). Participation in these projects enables VSG to incorporate the latest technological developments into its services.

#### (ii) Industry Knowledge

Volmac recognises the importance of industry-specific expertise. For this reason, Volmac Nederland has organised into 11 market sectors - small, autonomous units whose task is to build up and maintain knowledge and expertise about the application of information technology within a specific market sector. Their task is to keep as closely as possible in touch with developments within that market sector so that they are able to detect trends in the market at an early stage that are important for the development of future services.

Console, another subsidiary, offers its services to the fashion and food industry.

#### (iii) Key Application Products

At present, it is estimated that Volmac's revenues from application software products account for only 1% of the company's revenues. However, it is an area where the company is prepared to invest to meet the needs of particular industry sectors.

## Strengths and Weaknesses

Volmac has recognised the changes taking place in the software and services market-place and the corresponding needs for the group:

- To become more adept at providing business solutions
- To improve its industry-specific capabilities
- To offer systems integration and systems operations services
- To improve its geographic coverage

The company is the leading software and services vendor in the Netherlands with a strong emphasis on professional services.

Demand for total solutions and system integration is growing. Given the breadth and scale of VSG's services, the group expects these to make a significant contribution to turnover growth.

Nonetheless, the company has historically had a number of weaknesses in serving the systems integration market. These arise to a certain extent from the group's operation as 24 separate subsidiaries, which has made it difficult for the company to achieve focused industry-specific products. To strengthen its position in vertical industries, Volmac has recently invested in the development of its own application software products. However, the results have been disappointing, due to the company's lack of an international distribution network for these products. While Volmac may try to market these products via CGS, it is more probable that the company will move away from product development and adopt a partnership approach.

The company places considerable emphasis on new technologies and is strong in knowledge-based systems and systems development methodologies.

The merger with CGS is a major step forward in enabling the Volmac Group to develop its presence in both the systems integration market and in systems operations. Specifically the merger should assist Volmac in improving its presence in Belgium, in gaining access to application software products and industry-specific expertise, and in developing links with Gemini Consulting for management consultancy and change management capabilities.

**Conclusions**

Volmac Group is convinced that the changes in the organisation which were initiated in 1991 and which will be completed during the course of 1992 will considerably strengthen the company by making it more market-oriented and more competitive. This in turn should lead to an increase in market share.

Provided Volmac can take advantage of its association with Cap Gemini Sogeti, the company should be able to improve its standing in the systems integration markets in the Netherlands and Belgium to become one of the major players here, if not the dominant player.

**Strategic Assessment**

VOLMAC recently admitted defeat in its attempt to break out of its national market and become a pan-European company with its acceptance of a role within CGS's widening sphere of influence over individual national European markets.

In line with CGS's overall ambitions and development, VOLMAC will carry the flag for CGS in Holland and thus is likely to develop significant outsourcing capabilities.

Its role in systems integration contracting is likely to be less significant although it is possible that it will be able to develop a leadership role in the government-influenced sector in Holland.

# INPUT<sup>®</sup>

## U.S. Information Services Market Analysis Program

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- Program Introduction
- Definition of Terms
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